WANKONG ELECTRICAL

Integrated power service provider
电力服务综合供应商

China Electrical Group

Wankong Electrical Equipment Manufacturing Co., Ltd

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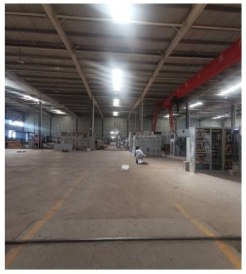

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China Electrical Group Wankong Electrical Equipment Manufacturing Co., Ltd












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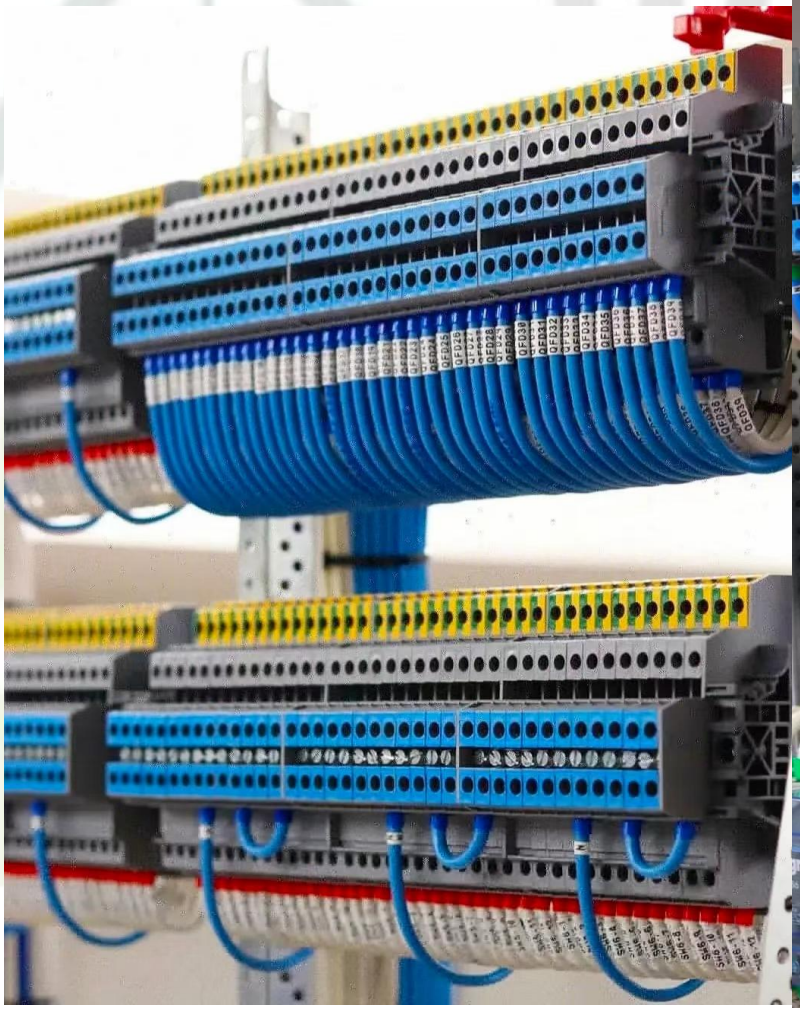

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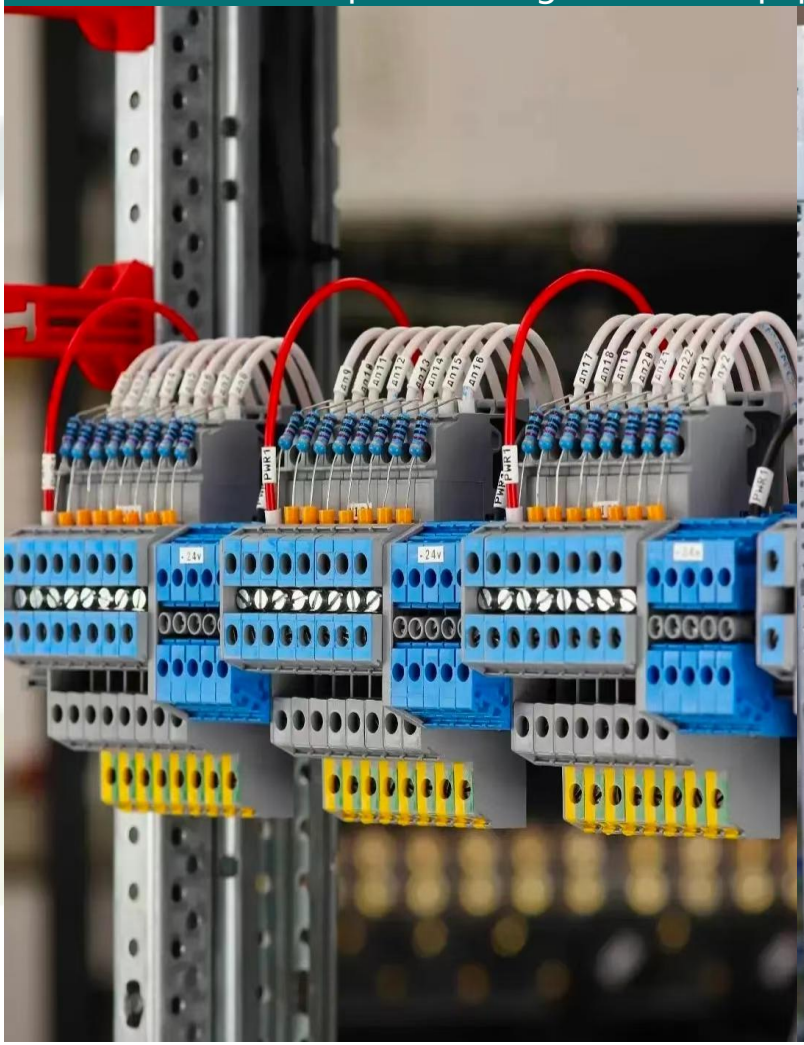

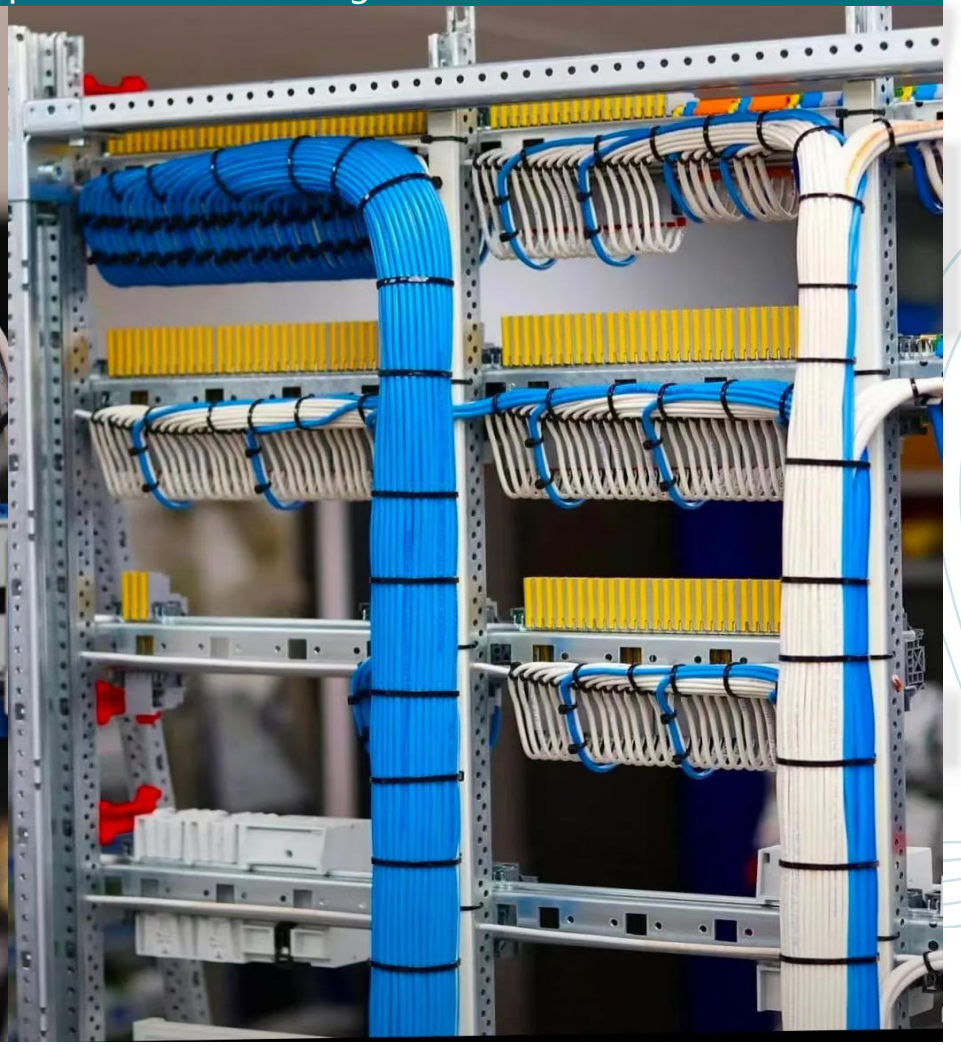

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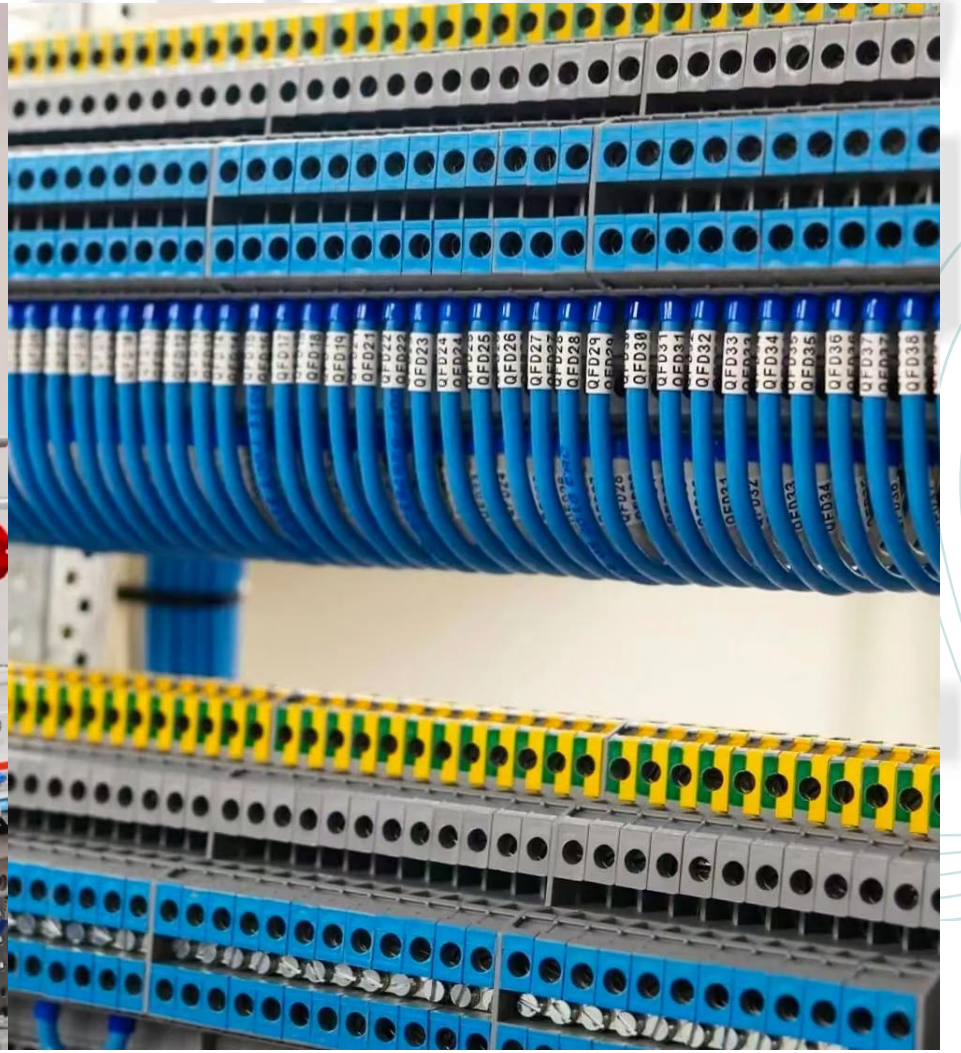

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China Electrical Group Wankong Electrical Equipment Manufacturing Co., Ltd

Photovoltaic energy storage system 光伏储能系统

China Electrical Group Wankong Electrical Equipment Manufacturing Co., Ltd

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Company Introduction

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WANKONG ELECTRICAL

China Electrical Group Wankong Electrical Equipment Manufacturing Co., Ltd is located in the most famous transformer production base in China - Baoding, It is about 75 kilometers away from Beijing, the capital of China, and about 50 kilometers away from Daxing Airport in the capital.is a manufacturing enterprise that can provide the production, sales and installation of power equipment products, the company's main sales products are 1000KV and below in line with TS/ISO/IEC/ANSI/GOS/BS standards for various applications of small high-prototype box transformer, YB European standard transformer, American standard box transformer, photovoltaic power transformer and various types of CCC/ICE/UL/TRCU/EAC-EX/ GOST/saber certified switchgear.

Company Introduction

公司简介

WANKONG ELECTRICAL

The transformer sold by our company include mining transformer, oil-immersed transformer, dry-type transformer, box transformer are widely used in solar energy, wind power generation, industrial plants, urban power grid transformation, residential areas, high-rise buildings, mining, hotels, railways, oil fields, highways and other scenarios, at the same time, our company also sells various types of high and low voltage complete sets of equipment distribution cabinets.

High and low voltage complete sets of equipment switchgear is another main product of our company, components are preferred to meet the Chinese CCC standard and EU standard CE standard domestic CHINT, DELIXI, Noark brand, can also be customized according to customer requirements ABB, SIEMENS, Schneider and other brands of components.

Company Introduction

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WANKONG ELECTRICAL

Our company has a professional technical team, which can provide a variety of scenario-based professional drawings and construction suggestions, and can also complete the technical guidance of after-sales installation services around the world.

A major region of the global high voltage switchgear market

- North America (United States, Canada and Mexico)
- Europe (Germany, UK, France, Italy, Russia, Turkey, etc.)
- Asia Pacific (China,Hongkong,Singapore, Japan, Korea, India, Australia, Indonesia, Thailand, Philippines, Malaysia and Vietnam)
- South America (Brazil, Argentina, Colombia, etc.)
- Middle East and Africa (Saudi Arabia, UAE, Egypt, Nigeria and South Africa)
- Central Asia (Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan, Tajikistan, Afghanistan, Pakistan)

Company Introduction

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WANKONG ELECTRICAL

万控电气设备制造有限公司位于全中国最著名的变压器生产基地-保定，距离中国首都北京约75公里，距离首都大兴机场约50公里。是一家可提供电力设备产品生产销售和安装的制造型企业，公司主要销售产品为1000KV及以下符合TS/ISO/IEC/ANSI/GOS/BS/KEMA标准的各种应用的小型高原型箱式变压器，YB欧洲标准变压器，美国标准的箱式变压器，光伏电力变压器和各类型经过CCC/ICE/UL/TRCU/EAC-EX/GOST/saber认证的开关柜。

Company Introduction

公司简介

WANKONG ELECTRICAL

我公司销售的变压器包括矿用变压器，油浸式变压器，干式变压器，箱式变压器广泛被用于太阳能、风能发电、工业工厂、城市电网改造，住宅小区，高层建筑，矿山开采，酒店宾馆，铁路，油田，高速公路等场景，同时我公司还销售各种型号的高低压成套设备配电柜。

高低压成套设备开关柜是我公司的另外一项主要销售的产品，元器件优先采用符合中国CCC标准和欧盟标准CE标准的国产CHINT、DELIXI、Noark品牌，也可以根据客户要求定制安装ABB、SIEMENS、Schneider等各品牌的元器件。

Company Introduction

公司简介

我公司具有一支专业的技术人员团队，可提供各种场景化的专业图纸和施工建议，也可以较好的完成世界各地的售后安装服务技术指导。

全球高压开关设备市场的主要区域

- 北美（美国、加拿大和墨西哥）
- 欧洲（德国、英国、法国、意大利、俄罗斯和土耳其等）
- 亚太地区（中国、香港、日本、韩国、印度、澳大利亚、印度尼西亚、泰国、菲律宾、马来西亚和越南）
- 南美洲（巴西、阿根廷、哥伦比亚等）
- 中东和非洲（沙特阿拉伯、阿联酋、埃及、尼日利亚和南非）
- 中亚地区（哈萨克斯坦、乌兹别克斯坦、吉尔吉斯斯坦、土库曼斯坦、塔吉克斯坦、阿富汗、巴基斯坦）

Transformer
变压器

Dry-type Transformer
干式变压器

At present, our company's SCB series transformers include products with different performance level grades such as SCB10, SCB11, SCB12, SCB13, SCB14 and SCB18, corresponding to voltage levels of 6 - 10KV, 20KV and 35KV.

Technical parameters:

1. Operating frequency: 50 / 60HZ;
2. No-load current: < 4%;
3. Withstand voltage strength: No breakdown under 20000V / min. Test instrument: YZ1802 withstand voltage tester (20mA).
4. Insulation class: Class F (special classes can be customized).
5. Insulation resistance: ≥2M ohms. Test instrument: ZC25B-4 megohmmeter (<1000V).
6. Connection mode: Y/Y, △/Y0, Yo/△, autotransformer type (optional).
7. Allowable temperature rise of the coil: 100K.
8. Heat dissipation method: Natural air cooling or temperature-controlled automatic heat dissipation.
9. Noise factor: ≤30dB.

Dry-type Transformer
干式变压器变压器

目前我公司SCB 系列变压器有SCB10、SCB11、SCB12、SCB13、SCB14、SCB18等不同性能水平等级产品，对应电压等级6-10KV、20KV、35KV等

技术参数：

1、使用频率：50 / 60HZ；

2、空载电流：< 4 %；

3、耐压强度：20000V / min无击穿；测试仪器：YZ1802 耐压试 验仪（20mA）；

4、绝缘等级：F级（特殊等级可定制）；

5、绝缘电阻：≥2M欧姆测试仪器：ZC25B —4 型兆欧表<1000 V）；

6、连接方式：Y/Y 、△/Y0 、Yo/△，自耦式（可选）；

7、线圈允许温升：I00K；

8、散热方式：自然风冷或温控自动散热；

9、噪音系数：≤30dB

Dry-type Transformer
干式变压器

Meaning of the model number of SCB series transformers:

SC: Three-phase solid casting (epoxy resin casting);

B: "Foil" type coil on the low-voltage side of the transformer;

13: Code for the performance level of the transformer (energy consumption grade);

XXX: Rated capacity of the transformer (KVA);

***: Rated high-voltage value (fill in according to the rated value).

SCB系列变压器-号含义：

SC：三相固体成-（环氧浇注）；

B：变压器低压“”箔“”式线圈；

13：变压器性能水平代号（能耗等级）

XXX：变压器额定容量（KVA）

***：额定高压电压（按额定值填入）

SCB10-35KV dry-type transformer
Technical parameters
干式变压器SCB10-35KV技术参数

Rated capacity 额定容量（KVA）	Connection symbol 联结组 标号	Voltage combination and tapping range 电压组合及分接范围			No-load current 空载电流 (%)	No-load loss 空载损耗 (W)	Load loss 负载损耗 (W)	Short-circuit impedance 短路阻抗 (%)	weight 重量（kg）	noise 噪声 (dB)	Body size 本体尺寸(mm)	Enclosure size 外壳尺寸(mm)	rail gauge 轨距(mm)
		high voltage 高压 (kV)	High-voltage tapping range 高压分接范围（%）	low voltage 低压 (kV)									
SCB10-30KVA	6 6.3 6.6 10 10.5 11	±5% ±2×2.5%	0.4	D,yn11 Yyn0	2.72	192	706	4	250	44	880*600*875	1700*1250*1660	400*400
SCB10-50KVA					2.38	272	994		400	44	950*750*915	1700*1250*1660	550*550
SCB10-80KVA					2.21	368	1377		480	45	1000*750*977	1700*1250*1660	550*550
SCB10-100KVA					2.04	400	1573		520	45	1030*750*1006	1700*1250*1660	550*550
SCB10-125KVA					1.86	472	1845		550	48	1060*750*1033	1700*1250*1660	550*550
SCB10-160KVA					1.87	544	2125		610	48	1080*750*1123	1700*1250*1660	550*550
SCB10-200KVA					1.7	624	2525		950	48	1100*860*1160	1700*1250*1660	550*550
SCB10-250KVA					1.7	720	2754		1020	48	1130*860*1262	1700*1250*1660	660*660
SCB10-315KVA					1.53	880	2468		1200	50	1220*860*1126	1900*1350*1865	660*660
SCB10-400KVA					1.53	976	3987		1480	50	1238*860*1195	1900*1350*1865	660*660
SCB10-500KVA					1.53	1160	4879		1650	52	1256*860*1230	1900*1350*1865	660*660
SCB10-630KVA					1.36	1344	5859		1820	52	1380*860*1265	2100*1400*2200	820*660
SCB10-630KVA					1.36	1296	5959	6	1850	52	1420*860*1260	2100*1400*2200	820*660
SCB10-800KVA					1.36	1520	6953		2300	54	1445*1020*1385	2100*1400*2200	820*660
SCB10-1000KVA					1.19	1768	8126		2650	54	1500*1070*1481	2100*1400*2200	820*660
SCB10-1250KVA					1.19	2088	9690		3000	55	1625*1270*1610	2300*1500*2400	820*660
SCB10-1600KVA					1.19	2480	11730		3800	56	1675*1270*1660	2300*1500*2200	1070*1070
SCB10-2000KVA					1.02	3320	14450	6-8	4600	56	1805*1270*1940	2400*1600*2400	1070*1070
SCB10-2500KVA					1.02	4000	17170	6-8	5200	60	1945*1270*1985	2600*1600*2500	1070*1070
SCB10-3150KVA											2050*1270*2250	2600*1600*2640	1070*1070
SCB10-4000KVA											2175*1400*2256	2800*1800*2840	1070*1070

SCB-11KV Dry-type Transformer
Technical parameters
干式变压器SCB-11KV技术参数

Rated capacity 变压器额定容量 (KVA)	Voltage combination and tapping range 变压器电压组合及分接范围			Connection symbol **变压器**联结组标号	No-load loss 变压器空载损耗 (W)	Load loss 变压器负载损耗 (W)	No-load current 变压器空载电流 (%)	Short-circuit impedance 变压器短路阻抗 (%)
	high voltage 变压器高压 (kV)	High-voltage tapping range 变压器高压分接范围（%）	low voltage 变压器低压 (kV					
SCB11-50KVA	20 22 24	±5%±2×2.5	0.4	D,yn11 Yyn0	340	1300	2.2	6
SCB11-100KVA					540	2100	2	
SCB11-160KVA					675	2600	1.8	
SCB11-200KVA					740	3100	1.6	
SCB11-250KVA					845	3600	1.6	
SCB11-315KVA					970	4300	1.4	
SCB11-400KVA					1150	5100	1.4	
SCB11-500KVA					1350	6100	1.4	
SCB11-630KVA					1530	7200	1.2	
SCB11-800KVA					1755	8700	1.2	
SCB11-1000KVA					2070	10300	1.1	
SCB11-1250KVA					2385	12150	1.1	
SCB11-1600KVA					2790	14600	1.1	
SCB11-2000KVA					3240	17250	1.0	6/8
SCB11-2500KVA					3870	20400	1.0	

SCB-13 Dry-type Transformer
Technical parameters
干式变压器SCB-13系列技术参数

Rated capacity 额定容量 (KVA)	Voltage combination and tapping range 变压器电压组合及分接范围			Connection symbol 变压器联结组标号	No-load loss 变压器空载损耗 (W)	Load loss 变压器负载损耗 (W)	No-load current 变压器空载电流 (%)	Short-circuit impedance变压器短路阻抗 (%)
	high voltage 变压器高压 (kV)	High-voltage tapping range 变压器高压分接范围（%）	low voltage 变压器低压 (kV					
SCB13-30KVA	6 6.3 6.6 10 10.5 11	±5% ±2×2.5	0.4	D,yn11	130	640	2.6	4
SCB13-50KVA					190	900	2.2	
SCB13-80KVA					260	1240	2.2	
SCB13-100KVA					280	1410	2	
SCB13-125KVA					330	1660	1.8	
SCB13-160KVA					380	1910	1.8	
SCB13-200KVA					435	2270	1.6	
SCB13-250KVA					505	2480	1.6	
SCB13-315KVA					615	3120	1.4	
SCB13-400KVA					685	3590	1.4	
SCB13-500KVA					810	4390	1.4	
SCB13-630KVA					940	5360	1.2	
SCB13-630KVA					910	5360	1.2	6
SCB13-800KVA					1065	6260	1.2	
SCB13-1000KVA					1240	7310	1.1	
SCB13-1250KVA					1460	8720	1.1	
SCB13-1600KVA					1715	10500	1.1	
SCB13-2000KVA					2135	13000	1.0	6/8
SCB13-2500KVA					2520	15400	1.0	

Oil-immersed Transformer
油浸式变压器

Oil-immersed Transformer
油浸式变压器

Oil-immersed Transformer Structure:

Core: High-quality cold-rolled silicon steel sheets are usually adopted, which have the characteristics of high magnetic permeability and low loss to reduce the energy loss and heat generation of the core under the action of the magnetic field. Generally, the silicon steel sheets are specially processed and treated to make their surfaces smooth and have good insulation performance. Moreover, when they are laminated, an interleaved lamination method will be used to reduce the eddy current loss of the core.

Windings: They are wound by insulated conductors. Copper conductors and aluminum conductors are common. The structural forms of the windings are diverse, including cylindrical type, continuous type, and interlaced type, etc. Different structural forms are applicable to different voltage levels and capacity requirements. To ensure the insulation performance and heat dissipation performance of the windings, multiple layers of insulating materials will be used for wrapping and impregnation treatment during the winding process.

Oil-immersed Transformer
油浸式变压器

Insulation System: The insulation system of a dry-type transformer is mainly composed of insulating materials, which are used to isolate components at different potentials and prevent electrical breakdown and short-circuit faults. Besides the insulation treatment of the windings themselves, good insulation is required between the core and the windings, between different windings, and between the windings and the transformer enclosure. Commonly used insulating materials include polyester film, Nomex paper, epoxy resin, etc. These insulating materials have excellent electrical insulation performance, heat resistance performance and mechanical strength.

Cooling System: Since dry-type transformers do not use oil as a cooling medium, their cooling methods mainly rely on natural air cooling or forced air cooling. Dry-type transformers with natural air cooling dissipate heat through heat exchange between the heat sinks on the surface of the transformer and the surrounding air, and are suitable for small-capacity transformers. Forced air-cooled dry-type transformers add fan devices on the basis of natural air cooling. By accelerating the air flow through the fans, the heat dissipation efficiency is improved, and they are suitable for large-capacity or high-load transformers.

Oil-immersed Transformer
油浸式变压器

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Oil-immersed Transformer
油浸式变压器

油浸式变压器结构：

铁芯：通常采用优质的冷轧硅钢片，其具有高磁导率和低损耗的特性，以减少铁芯在磁场作用下的能量损耗和发热。硅钢片一般经过特殊的加工和处理，使其表面光滑、绝缘性能良好，并且在叠装时会采用交错叠片的方式，以降低铁芯的涡流损耗。

绕组：由绝缘导线绕制而成，常见的有铜导线和铝导线。绕组的结构形式多样，有圆筒式、连续式、纠结式等，不同的结构形式适用于不同的电压等级和容量要求。为了保证绕组的绝缘性能和散热性能，绕组在绕制过程中会采用多层绝缘材料进行包扎和浸渍处理。

绝缘系统：干式变压器的绝缘系统主要由绝缘材料构成，用于隔离不同电位的部件，防止电气击穿和短路故障的发生。除了绕组自身的绝缘处理外，铁芯与绕组之间、不同绕组之间以及绕组与变压器外壳之间都需要有良好的绝缘。常用的绝缘材料有聚酯薄膜、Nomex 纸、环氧树脂等，这些绝缘材料具有优良的电气绝缘性能、耐热性能和机械强度。

冷却系统：由于干式变压器没有油作为冷却介质，其冷却方式主要依靠空气自然冷却或强迫风冷。自然冷却的干式变压器通过变压器表面的散热片与周围空气进行热交换来散热，适用于小容量的变压器。强迫风冷的干式变压器则在自然冷却的基础上，增加了风扇装置，通过风扇加速空气流动，提高散热效率，适用于大容量或高负载的变压器。

Oil-immersed Transformer
油浸式变压器

Meaning of the model number of S11-M type 6-10KV transformers:

S: Three-phase;

11: Design serial number (in accordance with energy-saving standards);

M: Totally sealed;

□ - Rated capacity;

10 - Voltage level on the high-voltage side (KV).

S11-M型6-10KV变压器型号含义：

S：三相；

11：设计序号（按节能标准）

M：全密封

口-额定容量

10-高压侧电等级（KV）

S11-M type 6-10KV series oil-immersed transformers
Technical parameters
S11-M型6-10KV系列油浸式变压器 技术参数

Rated capacity 额定容量 (kVA)	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗 (W)	Load loss 负载损耗 (W)	No-load current 空载电流（%）	Short-circuit impedance短路阻抗 (%)
		high voltage 高压（kV）	High-voltage tapping range 高压分接范围 (%)	low voltage 低压（kV）				
S11-M-30kVA	D,yn11 Yyn0	11 10.5 10 6.3 6	±5%±2×2.5%	0.4 0.69	100	630/600	2.3	4
S11-M-50kVA					130	910/870	2.0	
S11-M63kVA					150	1090/1040	1.9	
S11-M-80kVA					180	1310/1250	1.9	
S11-M-100kVA					200	1580/1500	1.8	
S11-M-125kVA					240	1890.1800	1.7	
S11-M-160kVA					280	2310/2200	1.6	
S11-M-200kVA					340	2730/2600	1.5	
S11-M-250kVA					400	3200/3050	1.4	
S11-M-315kVA					480	3830/3650	1.4	
S11-M-400kVA					570	4520/4300	1.3	
S11-M-500kVA					680	5410/5150	1.2	
S11-M-630kVA					810	6200	1.1	4.5
S11-M-800kVA					960	7500	1.0	
S11-M-1000kVA					1150	10300	1.0	
S11-M-1250kVA					1360	12000	0.9	
S11-M-1600kVA					1640	14500	0.8	
S11-M-2000kVA					1960	19800	0.8	5
S11-M-2500kVA					2310	23000	0.7	

S11-M type 20KV series oil-immersed transformers
Technical parameters
S11-M型20KV系列油浸式变压器 技术参数

Rated capacity 额定容量 (kVA)	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗（W）	Load loss 负载损耗 (W)	No-load current 空载电流（%）	Short-circuit impedance 短路阻抗 (%)
		high voltage 高压（kV）	High-voltage tapping range 高压分接范围（%）	low voltage 低压（kV）				
S11-M-50kVA	D,yn11 Yyn0	20 22 24	±5% ±2×2.5%	0.4	210	1270/1210	2.00	6.5
S11-M-100kVA					290	2120/2020	1.80	
S11-M--125kVA					340	2500/2380	1.70	
S11-M-160kVA					360	2970/2830	1.60	
S11-M-200kVA					430	3500/3330	1.50	
S11-M-250kVA					510	4160/3960	1.40	
S11-M-315kVA					610	5010/4770	1.40	
S11-M-400kVA					730	6050/5760	1.30	
S11-M-500kVA					860	7280/6930	1.20	
S11-M-630kVA					1040	8280	1.10	
S11-M-800kVA					1230	9900	1.00	
S11-M-1000kVA					1440	12150	1.00	
S11-M-1250kVA					1760	14670	0.90	
S11-M-1600kVA					2120	17550	0.80	

SZ11 type 35KV series oil-immersed transformers
Technical parameters
SZ11型35KV系列油浸式变压器 技术参数

Rated capacity 额定容量 (kVA)	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗 (W)	Load loss 负载损耗 (W)	No-load current 空载电流（%）	Short-circuit impedance短路阻抗 (%)
		High-voltage 高压（kV）	High-voltage tapping range 高压分接范围 (%)	low voltage低压（kV）				
SZ11-2000kVA	Yd11	35	±3×2.5	6.3 10.5	2300	19240	0.80	6.5
SZ11-2500kVA					2720	20640	0.80	
SZ11-3150kVA		35-38.5	±3×2.5	6.3 10.5	3230	24710	0.72	7.0
SZ11-4000kVA					3870	29160	0.72	
SZ11-5000kVA					4640	34200	0.68	
SZ11-6300kVA					5630	36770	0.68	7.5
SZ11-8000kVA	Ynd11				7870	40610	0.60	7.5
SZ11-10000kVA					9280	48050	0.60	8.0
SZ11-12500kVA		35-38.5	±3×2.5	6.3 6.6 10.5 11	10940	56860	0.56	8.0
SZ11-16000kVA					13170	70320	0.54	8.0
SZ11-20000kVA					15570	82780	0.54	8.0

S11 type 35KV series oil-immersed transformers
Technical parameters
S11型35KV系列油浸式变压器 技术参数

Rated capacity 额定容量 （kVA）	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗 （W）	Load loss 负载损耗 （W）	No-load current 空载电流（%）	Short-circuit impedance短路阻抗 （%）
		High-voltage 高压（kV）	High-voltage tapping range 高压分接范围（%）	low voltage低压（kV）				
S11-50kVA	D,yn11 Yyn0	35 38.5	±5% ±2×2.5%	0.4	130	1200/1140	1.30	6.5
S11-100kVA					185	2010/1910	1.10	
S11-125kVA					215	2370/2260	1.10	
S11-160kVA					225	2820/2680	1.00	
S11-200kVA					270	3320/3160	1.00	
S11-250kVA					320	3950/3760	0.95	
S11-315kVA					385	4750/4530	0.95	
S11-400kVA					465	5740/5470	0.85	
S11-500kVA					545	6910/6580	0.85	
S11-630kVA					665	7860	0.65	
S11-800kVA					785	9400	0.65	
S11-1000kVA					920	11500	0.65	
S11-1250kVA					1120	13900	0.60	
S11-1600kVA					1350	16600	0.60	
S11-2000kVA					1590	19700	0.55	
S11-2500kVA					1890	23200	0.55	

Three-phase, double-winding, excitation voltage regulation power transformers with a capacity ranging from 630 KVA to 31,500 KVA. Technical parameters
630KVA-31500KVA三相双绕组*励磁调压电力变压器 技术参数

Rated capacity 额定容量 （kVA）	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗 （W）	Load loss 负载损耗 （W）	No-load current 空载电流（%）	Short-circuit impedance短路阻抗 （%）
		High-voltage 高压（kV）	High-voltage tapping range 高压分接范围（%）	low voltage低压 （kV）				
S11-630kVA	Ydn	35	±5%	3.15 6.3 10.5	830	7870	1.10	6.5
S11-800kVA					980	9410	1.00	
S11-1000kVA					1150	11540	1.00	
S11-1250kVA					1410	13940	0.90	
S11-1600kVA					1700	16670	0.80	
S11-2000kVA					2180	18380	0.70	
S11-2500kVA					2560	19670	0.60	
S11-3150kVA		35-38.5	±5%	3.15 6.3 10.5	3040	23090	0.56	7.0
S11-4000kVA					3620	27360	0.56	
S11-5000kVA					4320	31380	0.48	
S11-6300kVA					5250	35060	0.48	
S11-8000kVA	Yd11	35-38.5	±2×2.5%	3.15 3.3 6.3 6.6 10.5 11	7200	38480	0.42	7.5
S11-10000kVA					8700	45320	0.42	
S11-12500kVA					10080	53870	0.40	8.0
S11-16000kVA					12160	65840	0.40	
S11-20000kVA					14400	79520	0.40	
S11-25000kVA					17020	94050	0.32	
S11-31500kVA					20220	112860	0.32	

S13 type 10KV series oil-immersed transformers Technical parameters

S13型10KV系列油浸式变压器 技术参数

Rated capacity 额定容量 (kVA)	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗 (W)	Load loss 负载损耗 (W)	No-load current 空载电流 (%)	Short-circuit impedance短路阻抗 (%)	weight重量（KG)）			Overall dimensions 外形尺寸（mm) 长（L)x 宽（W)x高（H)		wheelbase 轴距纵向/横向
		High-voltage高压 (kV)	High-voltage tapping range高压分接范围 (%)	low voltage低压 (kV)					transformer body 器身重	Oil Weight油重	total weight 总重	Totally sealed 全密封	Not fully sealed非全密封	
S13-30kVA	D,yn11 Yzn11 Yyn0	6 6.3 10 10.5 11	±5% ±2×2.5%	0.4	80	630/600	2.3	4.0	130	700	300	700*710*930	930*580*1000	400/400
S13-50kVA					100	910/870	2.0		200	800	400	730*710*1010	950*600*1080	400/400
S13-63kVA					110	1090/1040	1.9		240	900	450	750*730*1040	970*630*1100	400/400
S13-80kVA					130	1310/1250	1.9		280	100	520	760*740*1060	980*640*1120	400/400
S13-100kVA					150	1580/1500	1.8		310	100	550	770*750*1130	1000*650*1200	450/400
S13-125kVA					170	1890/1800	1.7		370	120	640	800*770*1150	1030*670*1220	550/500
S13-160kVA					200	2310/2200	1.6		440	130	740	820*780*1240	1050*680*1310	550/500
S13-200kVA					240	2730/2600	1.5		500	140	810	840*810*1260	1070*700*1330	550/500
S13-250kVA					290	3200/3050	1.4		610	160	970	870*850*1300	1100*750*1370	550/500
S13-315kVA					340	3830/3650	1.4		750	200	1200	1180*820*1390	1400*720*1460	550/500
S13-400kVA	D,yn11 Yzn11 Yyn0				410	4520/1300	1.3		900	240	1420	1260*840*1450	1480*760*1520	550/500
S13-500kVA					480	5410/2150	1.2		1050	250	1620	1300*860*1500	1560*800*1600	660/600
S13-630kVA	D,yn11 Yyn0				570	620	1.1	4.5	1240	280	1860	1370*890*1470	1630*890*1570	660/600
S13-800kVA					700	750	1.0		1510	340	2250	1430*930*1580	1690*930*1680	820/820
S13-1000kVA					830	1030	1.0		1560	360	2410	1600*1100*1610	1860*1100*1720	820/820
S13-1250kVA					970	1200	0.9		1910	420	2930	1690*1140*1750	1950*1140*1860	820/820
S13-1600kVA					1170	1450	0.8		2320	520	3630	1820*1650*2060	1820*1650*2060	820/820
S13-2000kVA					1260	1780	0.6		2820	660	4550	1920*1750*2160	1920*1750*2160	1070/1070
S13-2500kVA					1490	2070	0.6		3550	760	5470	2020*1910*2260	2020*1910*2260	1070/1070

S13-M type 20KV series oil-immersed transformers
Technical parameters
S13-M型20KV系列油浸式变压器 技术参数

Rated capacity 额定容量 （kVA）	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗 （W）	Load loss 负载损耗 （W）	No-load current 空载电流（%）	Short-circuit impedance短路阻抗 （%）
		High-voltage 高压（kV）	High-voltage tapping range 高压分接范围 （%）	low voltage低压 （kV）				
S13-M-50kVA	20 22 24	±5% ±2×2.5%	0.4	D,yn11 Yyn0	170	1270/1210	2.00	6.5
S13-M-100kVA					230	2120/2020	1.80	
S13-M-125kVA					270	2500/2380	1.70	
S13-M-160kVA					290	2970/2830	1.60	
S13-M-200kVA					340	3500/3330	1.50	
S13-M-250kVA					410	4160/3960	1.40	
S13-M-315kVA					490	5010/4770	1.40	
S13-M-400kVA					580	6050/5760	1.30	
S13-M-500kVA					690	7280/6930	1.20	
S13-M-630kVA					830	8280	1.10	
S13-M-800kVA					980	9900	1.00	
S13-M-1000kVA					1150	12150	1.00	
S13-M-1250kVA					1410	14670	0.90	
S13-M-1600kVA					1700	17550	0.80	

S13type 35KV series oil-immersed transformers
Technical parameters
S13型35KV系列油浸式变压器 技术参数

Rated capacity 额定容量 （kVA）	Connection symbol 联结组标号	Voltage combination and tapping range 电压组合及分接范围			No-load loss 空载损耗 （W）	Load loss 负载损耗 （W）	No-load current 空载电流 （%）	Short-circuit impedance短路阻抗 （%）
		High-voltage 高压（kV）	High-voltage tapping range 高压分接范围（%）	low voltage低压（kV）				
S13-50kVA	D,yn11 Yyn0	35 38.5	±5%±2×2.5%	0.4	130	1200/1140	1.30	6.5
S13-100kVA					185	2010/1910	1.10	
S13-125kVA					215	2370/2260	1.10	
S13-160kVA					225	2820/2680	1.00	
S13-200kVA					270	3320/3160	1.00	
S13-250kVA					320	3950/3760	0.95	
S13-315kVA					385	4750/4530	0.95	
S13-400kVA					465	5740/5470	0.85	
S13-500kVA					545	6910/6580	0.85	
S13-630kVA					665	7860	0.65	
S13-800kVA					785	9400	0.65	
S13-1000kVA					920	11500	0.65	
S13-1250kVA					1120	13900	0.60	
S13-1600kVA					1350	16600	0.60	

Step-up transformers
升压变压器

Key features:

The main function of a step-up transformer is to increase the input voltage to the required voltage level to meet the requirements of a specific load. Its key features include:

1. Long-distance transmission: The step-up transformer can increase the voltage in the transmission circuit, so that the power can reduce the line loss when it is transmitted over long distances.

2. Power distribution: The step-up transformer raises the voltage in the transmission circuit to an appropriate level to meet the power demand in different regions.

3. Load adaptation: The step-up transformer can adjust the output voltage according to the load demand to meet the working requirements of different loads.

4. Power conversion: The step-up transformer can convert the alternating current into the required output voltage to meet the working requirements of specific equipment.

主要功能：

升压变压器的主要功能是将输入电压升高到需要的电压水平，以满足特定负载的要求。其主要功能包括：

1、长距离输电：升压变压器可以将输送电路中的电压提高，使电力能够在长距离传输时减小线路损耗。

2、电力配送：升压变压器将输送电路中的电压提高到适当的水平，以满足不同地区的电力需求。

3、负载适应：升压变压器可以根据负载需求调整输出电压，以适应不同负载的工作要求。

4、电力转换：升压变压器可以将交流电转换为所需的输出电压，以满足特定设备的工作要求。

Step-up transformers
升压变压器

Conditions of use for step-up transformers

1. The altitude does not exceed 1000m;
2. Ambient temperature: -15° C-45° C;
3. Relative humidity: ≤90%;
4. There is no gas vapor, chemical deposition, dust, dirt, and other explosive and corrosive media that seriously affect the insulation of the transformer in the installation site;
5. Any special use conditions that do not meet the above provisions shall be determined by the user and our factory through negotiation.

The main technical parameters of step-up transformer

1. Input voltage: rated voltage±10%
2. Output voltage: rated voltage±3 (capacitance)
3. Efficiency: ≥95%
4. Waveform Distortion: No additional waveform distortion
5. It can work unattended continuously for a long time
6. Insulation resistance: ≥50MΩ
7. Electrical strength: power frequency sinusoidal voltage 2000V, no breakdown and flashover phenomenon for one minute
8. Overload capacity: twice the rated current, maintain for one minute.

升压变压器使用条件

1.海拔高度不超过1000m；
2.环境温度：-15℃-45℃；
3.相对湿：≤90%;
4.安装场所无严重影响变压器绝缘的气体蒸汽、化学沉积、灰尘、污垢、及其它爆炸和腐蚀性介质；
5.凡不符合上述规定的特殊使用条件，应由使用单位和我厂协商确定。

升压变压器主要技术参数

1. 输入电压：额定电压±10%
2. 输出电压：额定电压±3（容载）
3. 效率：≥95%
4. 波形失真：无附加波形失真
5. 可长期连续无人值守工作
6. 绝缘电阻：≥50MΩ
7. 电气强度：工频正弦电压2000V历时一分钟无击穿及闪络现象
8. 过载能力：二倍的额定电流，维持一分钟。

On-column single-phase transformer
柱上单相变压器

Product Overview

- Low loss, energy-saving type, maximum voltage 36KV, maximum capacity 315KVA
- Actual measurements are better than ANSI and IEC standards, CB CCC KEMA ANSI certified
- High-efficiency and energy-saving coiled core structure design, using column suspension installation method
- High reliability verified in more than 50 countries and regions around the world
- Mainly used in suburban distribution networks, agricultural production and civil building power supply and distribution systems with decentralized power supply
- The products have been successfully sold to the Philippines, Australia, the United States, Japan, South America and other countries and regions
- Standards: IEEE C57, ANSI C57, IEC76, GB10318

产品概述

- 低损耗，节能型，最高电压36KV，最大容量315KVA
- 实际测量优于ANSI和IEC标准，CB CCC KEMA ANSI认证
- 高效节能卷铁芯结构设计，采用柱上式悬挂安装方式
- 全球50多个国家和地区运行验证的高可靠性
- 主要应用于供电分散的郊区配网、农业生产与民用建筑供配电系统
- 产品主要目前已成功销往菲律宾、澳大利亚、美国、日本、南美洲等国家和地区
- 执行标准：IEEE C57、ANSI C57、IEC76、GB10318

On-column single-phase transformer
柱上单相变压器

-Input voltage: 11KV, 12.4KV, 13.2kv, 13.8kv, 34.5KV; The output voltage is mainly 240/480V, 120/240V, etc.

- The products are mainly sold to the Philippines, Australia, the United States, Japan, Dominica, Guyana, Honduras, Peru, Argentina, Venezuela, Chile and other countries and regions

Executive standards: IEEE C57, ANSI C57, IEC60076

-输入电压11KV、12.4KV、13.2kv、13.8kv、34.5KV；输出电压主要为240/480V、120/240V等。

- 产品主要目前销往菲律宾、澳大利亚、美国、日本、多米尼加、圭亚那、洪都拉斯、秘鲁、阿根廷、委内瑞拉、智利等国家和地区

执行标准：IEEE C57, ANSI C57，IEC60076

On-column single-phase transformer
柱上单相变压器

Product Introduction

> Leading Technology

- The unique winding technology improves lightning resistance performance.
- With low magnetic leakage, high mechanical strength and strong short-circuit resistance.
- The core has a 45° fully inclined joint stepped lamination structure.

> Enclosure

- The laser cutting machines, CNC punching, cutting and folding equipment from Mitsubishi of Japan ensure the machining accuracy.
- Automatic welding by ABB robots and laser inspection avoid leakage points, with a qualification rate of 99.99998%.
- Electrostatic powder coating treatment ensures that the paint will not peel off within 50 years (the coating has a corrosion resistance within 100 hours and a hardness of no less than 0.4).
- Cylindrical fully sealed structure equipped with self-sealing manual pressure relief valves (in compliance with ANSI standards).
- Standard NEMA hanger brackets (each device includes pole bracket sub-boards).
- Fully sealed structure, maintenance-free, with a normal operation service life of over 30 years.

On-column single-phase transformer
柱上单相变压器

> Core

- The core is made of high-quality cold-rolled grain-oriented silicon steel sheets insulated with mineral oxides (from Baosteel and WISCO in China).
- Through the control of the processes of shearing and laminating of silicon steel sheets, the loss level, no-load current and noise are minimized.

> Windings

- The low-voltage windings are wound with high-quality cable paper-covered wires.
- The high-voltage windings are wound with high-quality polyurethane enameled round copper wires.
- Interlayer insulation uses adhesive-coated paper to bond the coils into a fixed unit, which has excellent insulation withstand performance.
- The transformer structure is firm during normal operation and transportation.

> High-Quality Materials

- Silicon steel sheets produced by Baosteel and WISCO.
- High-quality oxygen-free copper from China.
- High-quality transformer mineral oil (No. 25) or FR3 from PetroChina (Kunlun Petroleum).

> Others

- High-strength polymer low-voltage bushings or high and low-voltage porcelain bushings.
- Equipped with ring-shaped fully copper-tinned terminals.
- Fitted with current-limiting fuses and lightning arresters.

On-column single-phase transformer
柱上单相变压器

产品介绍

> 领先技术

- 独有绕组技术提高耐雷电性能
- 漏磁小，机械强度高，抗短路能力强
- 铁芯45°全斜接缝步进叠片结构

> 外壳

- 日本三菱激光切割机和数控冲、减、折等设备保证加工的精度
- ABB机器人自动焊接，激光检测，避免出现漏点，合格率99.99998%
- 静电喷塑处理，50年不脱漆（涂层耐腐蚀100h内，硬度≥0.4 ）
- 圆筒型全密封结构，配备自密封型手动压力释放阀（符合ANSI规范）
- 标准NEMA吊架支架（每个装置包括极支架子板）
- 全密封结构、免维护，正常运行使用寿命30年以上

> 铁芯

- 铁芯的材料选用矿物氧化物绝缘的优质冷轧晶粒取向硅钢片(来自中国宝钢、武钢)
- 通过对硅钢片剪切和叠装的工艺的控制，使损耗水平和空载电流及噪音降至最低

> 绕组

- 低压绕组以优质电缆纸包线绕制，
- 高压绕组用优质的聚氨酯漆包圆铜线绕制
- 层间绝缘使用点胶纸，使线圈粘合成一个固定单元，具备极好的绝缘耐受性能
- 在正常运行和运输过程中变压器结构牢靠

> 优质材料

- 宝钢、武钢生产硅钢片
- 中国优质无氧铜
- 中国石油（昆仑石油）优质变压器矿物油（25# ）或者FR3

> 其他

- 高强度聚合物低压套管或高低压瓷套管
- 配有环型全铜镀锡接线端子
- 装有限流熔断器和避雷器

10Kva On-column single-phase transformer
10Kva 柱上单相变压器

Power功率 (KVA)	High Voltage (V) 高压侧	Low Voltage (V) 低压侧	Loss(W)损耗		Dimension (mm)尺寸			Weight 重量 (kg)
			No-load Loss 空载损耗	On-load Loss 加载损失	W	D	H	
5kva	34500 19920 13800 7957 13200 7620 12470 7200 or others	120-240 240-480 347 600	19	75	465	485	855	92
10kva			36	120	500	525	885	150
15kva			50	195	520	565	905	210
25kva			80	290	560	590	935	258
37.5kva			105	360	610	625	935	340
50kva			135	500	635	675	1035	395
75kva			190	650	745	840	1035	480
100kva			210	850	770	965	1135	530
167kva			350	1410	795	890	1335	680

WANKONG ELECTRICAL

目录

Contents

Switchgear
配电柜

Switchgear KYN61-40.5

The KYN61-40.5 armoured removable AC metal-enclosed switchgear (hereinafter referred to as the switchgear) is a product developed by Wankong Electric Technology Co., Ltd. Its rated voltage and frequency are 40.5 kV and 50 (60 Hz) respectively. It is mainly used for receiving and distributing electrical energy in factories and power systems, as well as for controlling, protecting and monitoring electrical circuits. Its main features are that it can be equipped with vacuum circuit breakers or SF6 circuit breakers, and the cabinet adopts an assembled structure, which improves the product quality and mating accuracy.

Compliance with Standards

GB 3906-2006 "AC Metal-enclosed Switchgear for 3~35 kV"

GB 11022-89 "General Technical Requirements for High-voltage Switchgear"

IEC 62271-200 (2003) "AC Metal-enclosed Switchgear and Controlgear for Rated Voltages Above 1 kV and Up to and Including 52 kV"

Switchgear
KYN61-40.5

KYN61-40.5铠装移开式交流金属封闭开关设备 (以下简称开关设备) 是万控电气设备制造公司生产的产品，额定电压及频率分别为40.5KV,50(60Hz)。主要用于工厂和电力系统中接受和分配电能并对电路实行控制、保护和监测。其主要特点是能配真空断路器或SF6断路器,柜体采用组装结构，提高了产品品质和配合精度。

符合标准

GB3906-2006 《3~35kV交流金属封闭开关设备》

GB11022-89 《高压开关设备通用技术条件》

IEC62271-200(2003)《额定电压1 kV以上52kV及以下交流金属封闭开关设备和控制设备》

Switchgear
KYN61-40.5

Model and Its Meaning:

KYN61-40.5(Z)

K: Armoured type

Y: Movable type

N: Indoor

61: Design serial number

40.5: Rated voltage

Z: Vacuum circuit breaker (optional)

型号及含义：

KYN61-40.5（Z）

K：铠装式

Y：移动式

N :户内

61：设计序号

40.5：额定电压

Z：真空断路器（选装）

Switchgear KYN61-40.5

Operating Environmental Conditions

1. Ambient temperature: The maximum temperature is +40 °C, and the minimum temperature is -10 °C.

2. Ambient humidity: The average daily relative humidity is ≤ 95%, and the average monthly relative humidity is ≤ 90%.

3. Altitude: Below 1000m.

4. Earthquake resistance: The seismic intensity does not exceed 8 degrees.

5. The surrounding air should not contain obvious pollution such as corrosive or flammable gases, water vapor, etc.

6. There is no severe contamination and frequent violent vibration. Under harsh conditions, the design of the severity meets the requirements of Class

Switchgear
KYN61-40.5

使用环境条件

1、环境温度:最高温度+40℃，最低温度-10℃；

2、环境湿度：日平均相对湿度≤95%，月平均相对湿度在≤90%；

3、海拔高度:1000m以下；

4、抗地震度:地震烈度不超过8度；

5、周围空气应不含腐蚀性或可燃气体、水蒸气等明显污染；

6. 无严重污秽及经常性的剧烈振动，严酷条件下严酷度设计满足1类要求。

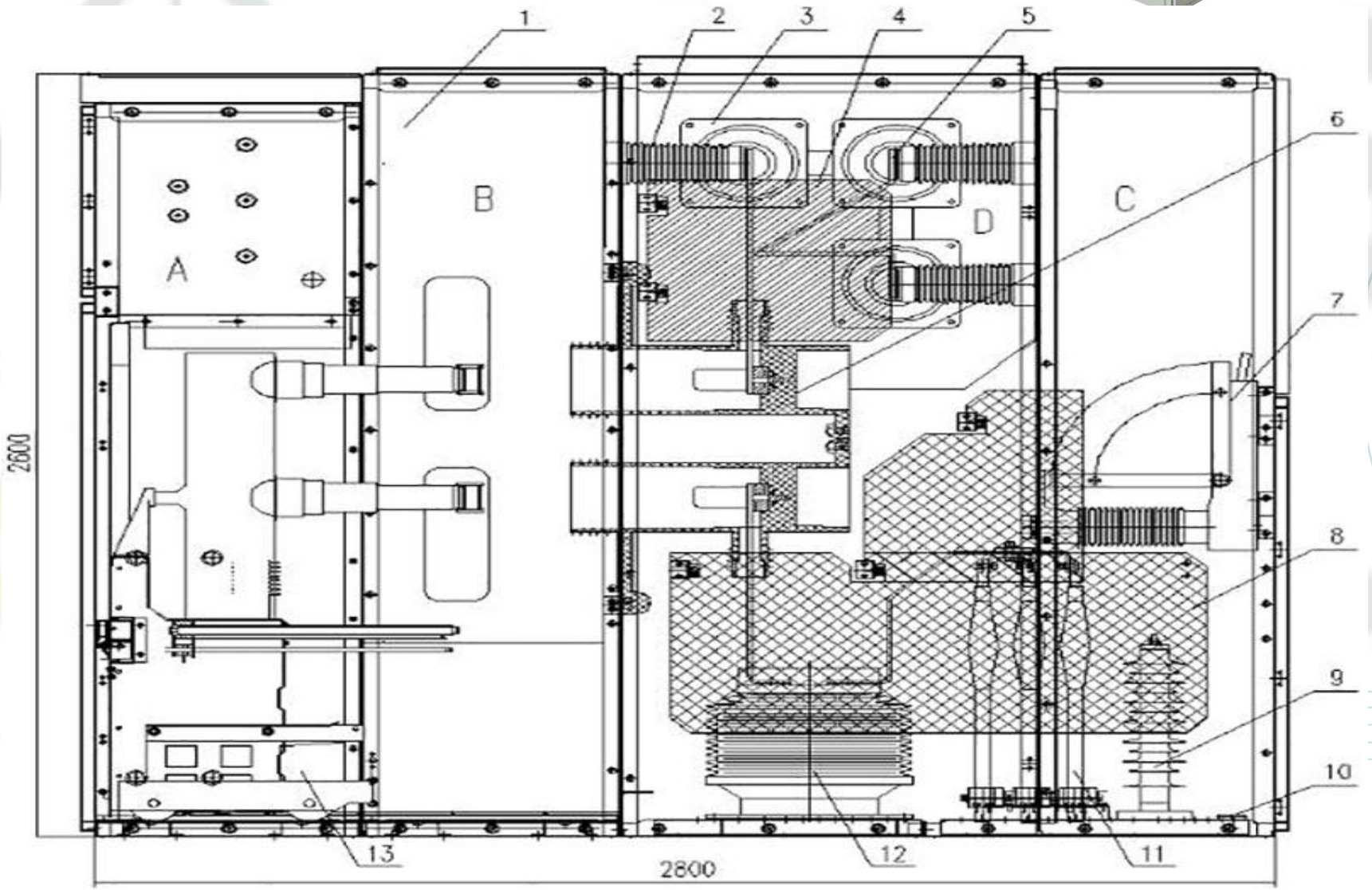
Technical parameters KYN61-40.5 series Switchgear

KYN61-40.5系列开关柜 技术参数

Project项目	Unit单位	Parameters参数		
		Circuit breaker model 断路器型号		
		ZN85-40.5	VD 4-40.5	ZN85-40.5（VD4-40.5）
Rated voltage 额定电压	KV	40.5		40.5
1-minute power frequency withstand voltage 1 min工频耐受电压		95		95
Lightning impulse withstand voltage 雷电冲击耐受电压		185		185
Rated frequency 额定频率	Hz	50/60		50/60
Rated current 额定电流	A	630、1250、1600、2000	630-3150	630、1250、1600、2000（2500,3150）
Rated thermal stability current 额定热稳定电流	KA	25、31.5		25,31.5
Rated dynamic stability current (peak value) 额定动稳定电流（峰值）		63 、80		63、 80
Rated short-circuit duration time 额定短路持续时间	s	4		4
Degree of protection 防护等级	The enclosure has an IP4X protection rating, and when the compartment or the circuit breaker door is open, it has an IPX2 protection rating. 外壳为IP4X，间隔室、断路器门打开时为IPX2			

Technical parameters KYN61-40.5 series Switchgear

KYN61-40.5系列开关柜 技术参数



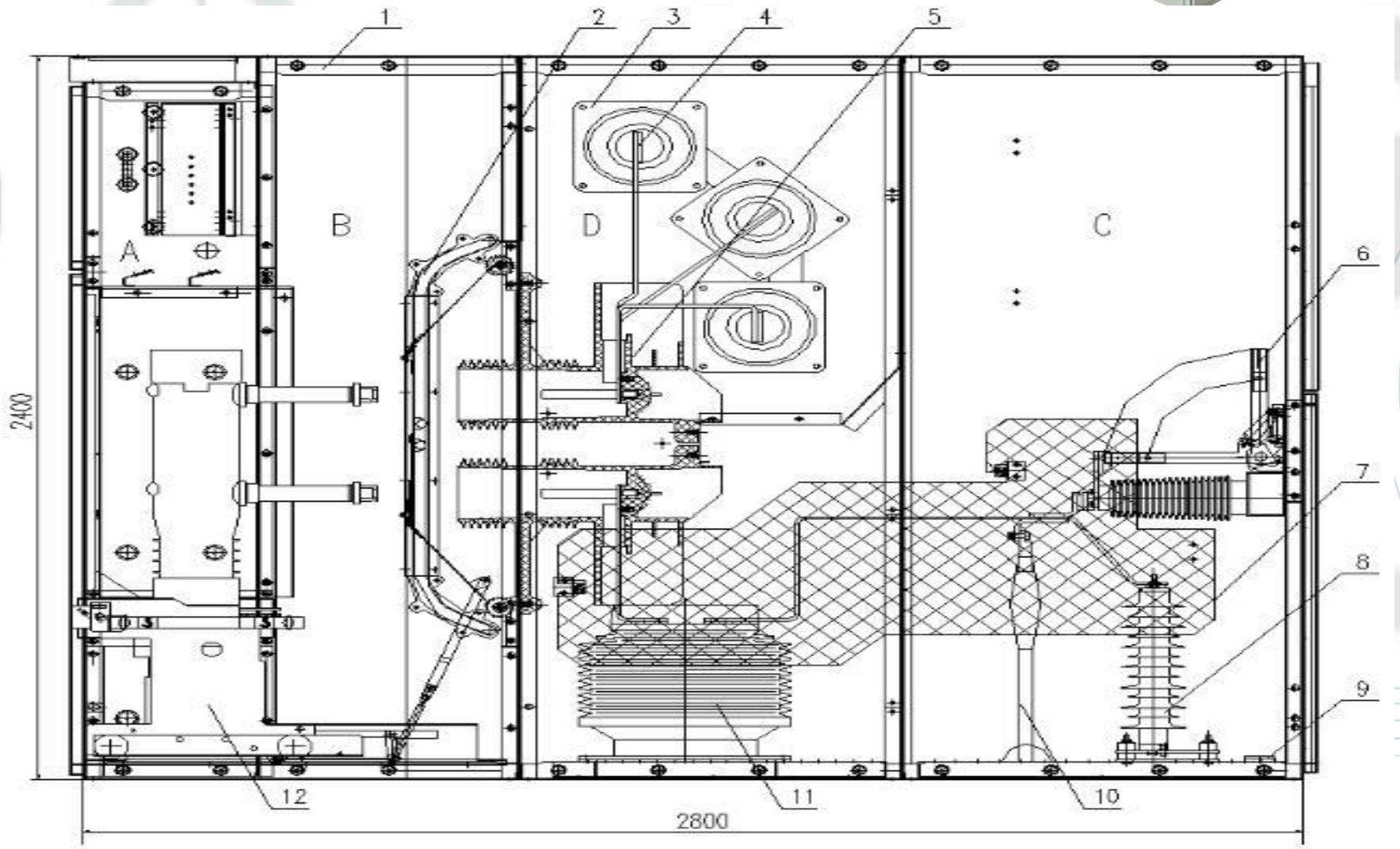
Technical parameters KYN61-40.5 series Switchgear

KYN61-40.5系列开关柜 技术参数

Structure diagram of the switchgear (equipped with ZN85-40.5 circuit breaker) 开关柜结构图(配ZN85-40.5断路器)			
Code 代号	**Location位置**	5	Main busbar主母线
A	Relay room继电器室	6	Contact box触头盒
B	Circuit breaker trolley compartment 断路器手车室	7	Earthing switch接地开关
C	Cable compartment电缆室	8	Insulation board in the cable compartment 电缆室绝缘板
D	Busbar compartment母线室	9	surge arrester避雷器
1	enclosure外壳	10	Earthing main busbar接地主母线
2	insulator绝缘子	11	Primary cable一次电缆
3	Wall bushing穿墙套管	12	Current transformer电流互感器
4	Insulation board in the busbar compartment 母线室绝缘板	13	circuit breaker断路器

Technical parameters KYN61-40.5 series Switchgear

KYN61-40.5系列开关柜 技术参数



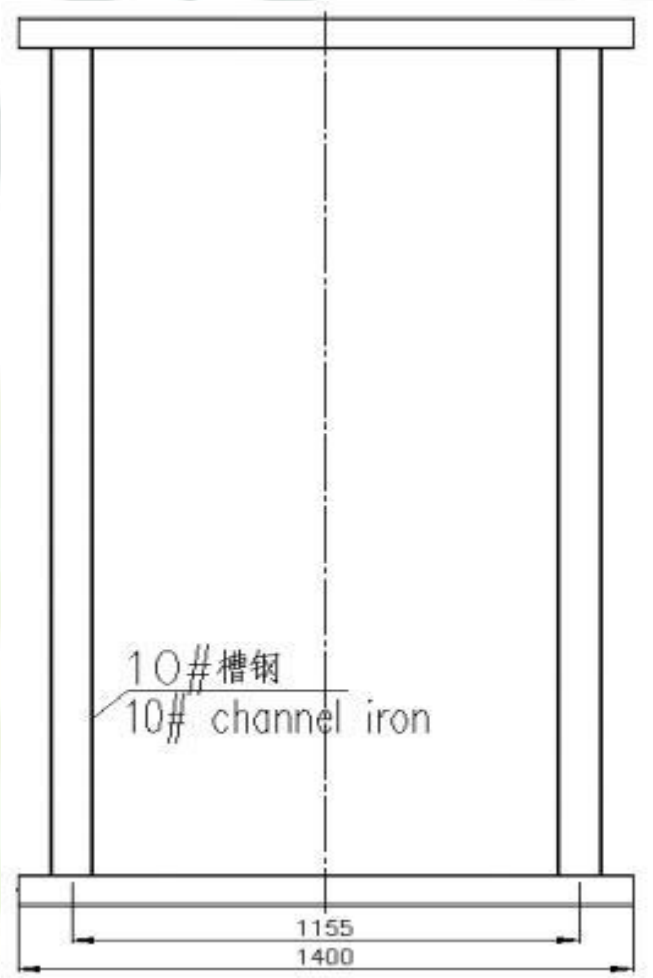
Technical parameters KYN61-40.5 series Switchgear

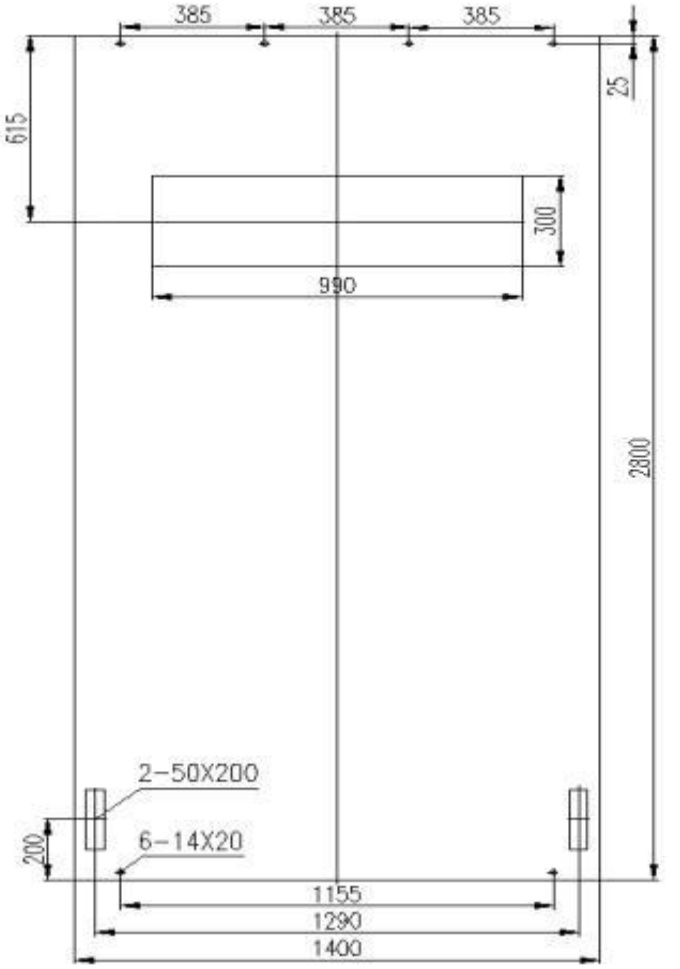
KYN61-40.5系列开关柜 技术参数

Structure diagram of the switchgear (equipped with VD4-40.5 circuit breaker) 开关柜结构图(配VD4-40.5断路器)			
Code 代号	**Location位置**	4	Main busbar主母线
A	Relay room继电器室	5	Contact box触头盒
B	Circuit breaker trolley compartment 断路器手车室	6	Earthing switch接地开关
C	Cable compartment电缆室	7	Insulation board in the cable compartment. 电缆室绝缘板
D	Busbar compartment母线室	8	surge arrester避雷器
1	enclosure外壳	9	Earthing main busbar接地主母线
2	Shutter mechanism活门机构	10	Primary cable一次电缆
3	Wall bushing穿墙套管	11	Current transformer电缆互感器
		12	circuit breaker断路器

Technical parameters KYN61-40.5 series Switchgear

KYN61-40.5系列开关柜 技术参数





Technical parameters KYN61-40.5 series Switchgear

KYN61-40.5系列开关柜 技术参数

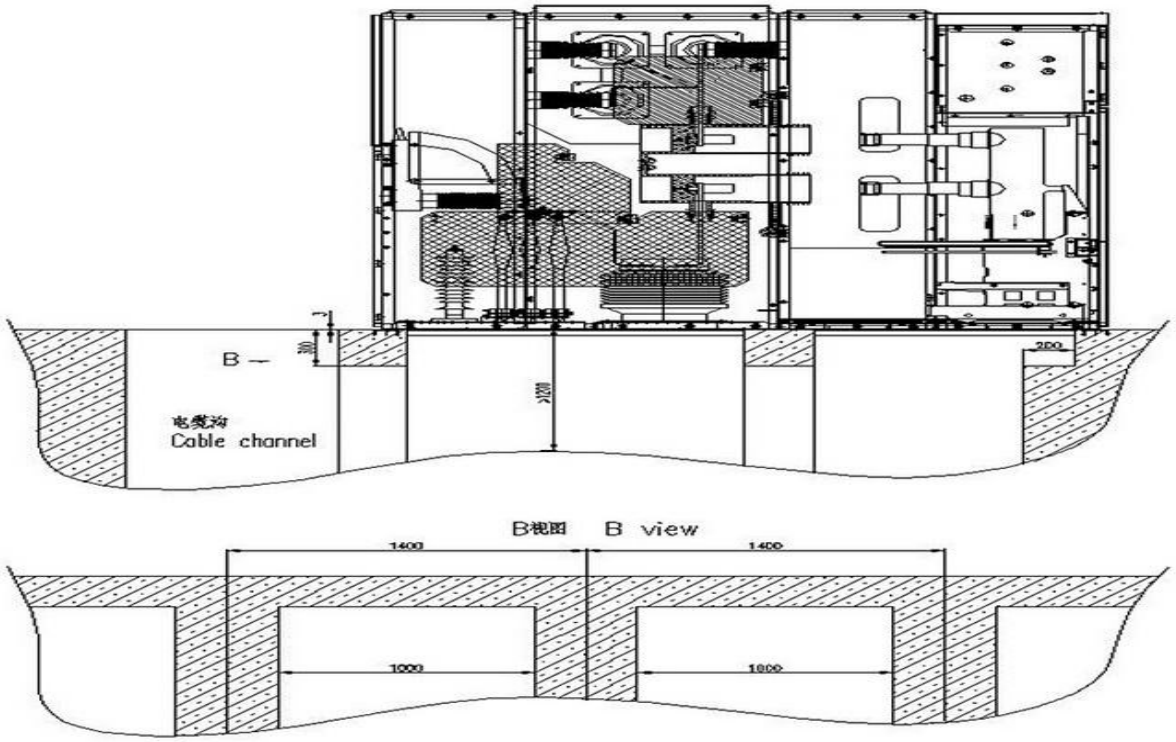


图 4

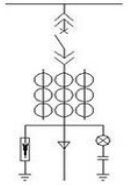
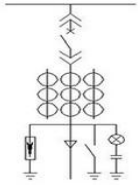
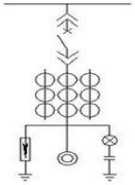
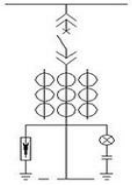
电缆沟示意图

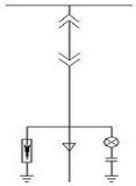
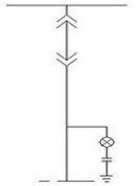
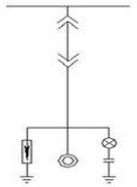
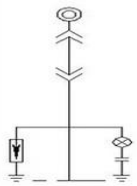
(配 ZN85-40.5 电缆沟示意图)

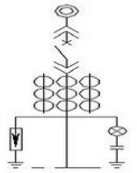
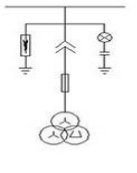
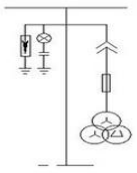
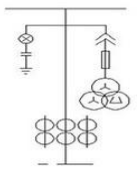
Technical parameters KYN61-40.5 series Switchgear

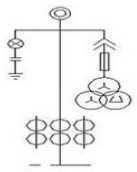
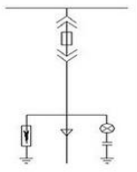
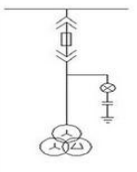
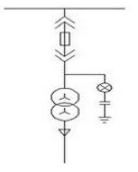
KYN61-40.5系列开关柜 技术参数

7.主接线方案

方案号	002		005		008		011	
一次接线方案								
断路器	ZN85(VD4)-40.5	1	ZN85(VD4)-40.5	1	ZN85(VD4)-40.5	1	ZN85(VD4)-40.5	1
电流互感器	LZZBJ9-35D	3	LZZBJ9-35D	3	LZZBJ9-35D	3	LZZBJ9-35D	3
电压互感器								
接地开关			JN22-40.5	1				
高压熔断器								
避雷器	HY5WZ-51/134	3	HY5WZ-51/134	3	HY5WZ-51/134	3	HY5WZ-51/134	3
带电显示器	DXN-35/Q	1	DXN-35/T	1	DXN-35/Q	1	DXN-35/Q	1

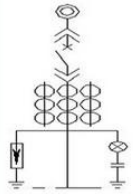
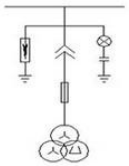
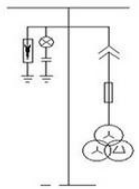
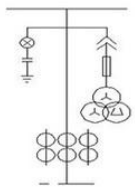
方案号	013		014		015		016	
一次接线方案								
隔离手车		1		1		1		1
电流互感器								
电压互感器								
接地开关								
高压熔断器								
避雷器	HY5WZ-51/134	3			HY5WZ-51/134	3	HY5WZ-51/134	3
带电显示器	DXN-35/Q	1	DXN-35/Q	1	DXN-35/Q	1	DXN-35/Q	1

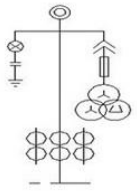
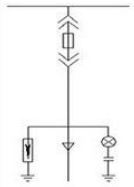
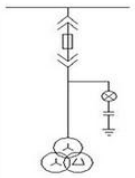
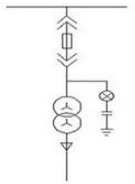
方案号	018		020		021		023	
一次接线方案								
断路器	ZN85(VD4)-40.5	1	PT 手车	1	PT 手车	1	PT 手车	1
电流互感器	LZZBJ9-35D	3					LZZBJ9-35D	3
电压互感器			JDZX9-35	3	JDZX9-35	3	JDZX9-35	3
接地开关								
高压熔断器			XRNP-40.5/1A	3	XRNP-40.5/1A	3	XRNP-40.5/1A	3
避雷器	HY5WZ-51/134	3	HY5WZ-51/134	3	HY5WZ-51/134	3		
带电显示器	DXN-35/Q	1	DXN-35/T	1	DXN-35/Q	1	DXN-35/Q	1

方案号	024		025		027		028	
一次接线方案								
熔断器手车	PT 手车	1		1		1		1
电流互感器	LZZBJ9-35D	3						
电压互感器	JDZX9-35	3			JDZX9-35	3		
接地开关								
高压熔断器	XRNP-40.5/1A	3	XRNT-40.5	3	XRNP-40.5/1A	3	XRNT-40.5/4A	3
避雷器			HY5WZ-51/134	3				
带电显示器	DXN-35/Q	1	DXN-35/T	1	DXN-35/Q	1	DXN-35/Q	1
变压器							SC11-35/0.4	1

Technical parameters KYN61-40.5 series Switchgear

KYN61-40.5系列开关柜 技术参数

方案号	018		020		021		023	
一次接线方案								
断路器	ZN85(VD4)-40.5	1	PT 手车	1	PT 手车	1	PT 手车	1
电流互感器	LZZBJ9-35D	3					LZZBJ9-35D	3
电压互感器			JDZX9-35	3	JDZX9-35	3	JDZX9-35	3
接地开关								
高压熔断器			XRNP-40.5/1A	3	XRNP-40.5/1A	3	XRNP-40.5/1A	3
避雷器	HY5WZ-51/134	3	HY5WZ-51/134	3	HY5WZ-51/134	3		
带电显示器	DXN-35/Q	1	DXN-35/T	1	DXN-35/Q	1	DXN-35/Q	1

方案号	024		025		027		028	
一次接线方案								
熔断器手车	PT 手车	1		1		1		1
电流互感器	LZZBJ9-35D	3						
电压互感器	JDZX9-35	3			JDZX9-35	3		
接地开关								
高压熔断器	XRNP-40.5/1A	3	XRNT-40.5	3	XRNP-40.5/1A	3	XRNT-40.5/4A	3
避雷器			HY5WZ-51/134	3				
带电显示器	DXN-35/Q	1	DXN-35/T	1	DXN-35/Q	1	DXN-35/Q	1
变压器							SC11-35/0.4	1

Technical parameters KYN61-40.5 series Switchgear
KYN61-40.5系列开关柜 技术参数

Ordering Instructions

When ordering KYN61-40.5 switchgear, the following technical information should be provided:

1. The number of the main wiring scheme diagram, its application, single-line system diagram, rated voltage, rated current, rated short-circuit breaking current, the layout plan of the distribution room and the arrangement and configuration diagram of the switchgear, etc.;

2. Requirements for the control, measurement and protection functions of the switchgear, as well as requirements and schematic diagrams for other interlocking and automatic devices;

3. The model, specification and quantity of the main electrical components inside the switchgear.

订货须知

KYN61-40.5开关柜订货时应提供下列技术资料：

1.主接线方案图编号、用途和单线系统图、额定电压、额定电流，额定短路开断电流、配电室平面布置图及开关柜的排列配置图等；

2.开关柜控制、测量及保护功能的要求以及其它闭锁和自动装置的要求及原理图；

3.开关柜内主要电气元件的型号，规格及数量。

Switchgear
KYN28A-12（24)

KYN28A indoor AC metal-clad switchgear with withdrawable circuit breaker (hereinafter referred to as the switchgear) is an advanced medium-voltage switchgear produced by Wankong Electrical Equipment Company. It is applicable to three-phase AC power systems with rated voltages of 12 KV and 24 KV and a rated frequency of 50 (60) Hz. It is used for receiving and distributing electrical energy and for controlling, protecting and monitoring electrical circuits.

KYN28A型户内交流金属铠装中置式开关设备(以下简称开关设备)系由万控电气设备公司生产的先进中压开关设备。它适用于三相交流额定电压12KV、24KV、额定频率50（60）Hz电力系统，用于接受和分配电能并对电路实行控制、保护及监测。

Switchgear
KYN28A-12 (24)

KYN28A indoor AC metal-clad switchgear with withdrawable circuit breaker. It is applicable to three-phase AC power systems with rated voltages of 12 KV and 24 KV and a rated frequency of 50 (60) Hz. It is used for receiving and distributing electrical energy and for controlling, protecting and monitoring electrical circuits.

Compliance Standards:

GB3906-2006 "AC Metal-enclosed Switchgear for Rated Voltages of 3 kV up to 35 kV"

GB11022-1999 "General Technical Requirements for High-voltage Switchgear"

IEC62271-200(2003) "AC Metal-enclosed Switchgear and Controlgear for Rated Voltages above 1 kV and up to 52 kV"

DL404-97 "Technical Requirements for Ordering Indoor AC High-voltage Switchgear"

Switchgear
KYN28A-12（24）

KYN28A型户内交流金属铠装中置式开关设备。它适用于三相交流额定电压12KV、24KV、额定频率50（60）Hz电力系统，用于接受和分配电能并对电路实行控制、保护及监测。

符合标准

GB3906-2006 《3~35kV交流金属封闭开关设备》

GB11022-1999 《高压开关设备通用技术条件》

IEC62271-200(2003)《额定电压1 kV以上52kV及以下交流金属封闭开关设备和控制设备》

DL404-97《户内交流高压开关柜订货技术条件》

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Model and Its Meaning

KYN28A-12(24)Z-□

K: Armored type

Y: Withdrawable type

N: Indoor

28A: Design serial number

12(24): Rated voltage

Z: Vacuum circuit breaker

□: Primary circuit scheme

KYN28A-12(24)Z-□

K：铠装式

Y：移动式

N：户内

28A：设计序号

12（24）：额定电压

Z：真空断路器

□：一次回路方案

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Environmental Conditions for Use

1. Ambient temperature: The maximum temperature is +40 °C, and the minimum temperature is -10 °C.

2. Ambient humidity: The average daily relative humidity is ≤ 95%, and the average monthly relative humidity is ≤ 90%.

3. Altitude: Below 1000 meters.

4. Earthquake resistance: The seismic intensity does not exceed 8 degrees.

5. The surrounding air should not contain obvious pollutants such as corrosive or combustible gases, water vapor, etc.

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

6. There should be no severe contamination and frequent violent vibrations. Under severe conditions, the severity design meets the requirements of Category 1

7. When used under normal environmental conditions exceeding those specified in GB3906, it shall be negotiated between the user and the manufacturer.

Note:

① When the relative humidity is greater than 70%, the electric heater should be turned on.

② In places where the altitude exceeds 1000 meters, it shall be handled in accordance with the provisions of JB/Z102-71.

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

使用环境条件

1、环境温度:最高温度+40℃，最低温度-10℃；

2、环境湿度：日平均相对湿度≤95%，月平均相对湿度≤90%；

3、海拔高度:1000m以下；

4、抗地震度:地震烈度不超过8度；

5、周围空气应不含腐蚀性或可燃气体、水蒸气等明显污染；

6、无严重污秽及经常性的剧烈振动，严酷条件下严酷度设计满足1类要求；

7、在超过GB3906规定的正常的环境条件下使用时，由用户和制造厂协商。

注：①相对湿度大于70%时应接通电加热器。

②凡海拔高度超过1000m的地方，按JB/Z102-71规定处理

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Project项目		Unit单位	12KVParameters 12KV 参数			24KVParameters 24KV参数
Rated voltage 额定电压		kV	3.6，7.2，12			24
Rated frequency 额定频率		Hz	50(60)			50(60)
Rated current of circuit breaker 断路器额定电流		A	630，1250，1600，2000， 2500，3150，4000，5000			630，1250，1600，2000，2500
Rated current of switchgear 开关柜额定电流		A	630，1250，1600，2000， 2500，3150，4000，5000			630，1250，1600，2000，2500
Rated thermal stability current 额定热稳定电流(4s)		kA	25，31.5，40，50（1S）			25,31.5,40
Rated dynamic stability current (peak value) 额定动稳定电流(峰值)		kA	63，80，100，125			63，80，100
Rated short - circuit breaking current 额定短路开断电流		kA	25，31.5，40，50			25，31.5，40
Rated short - circuit making current (peak value) 额定短路关合电流(峰值)		kA	63，80，100，125			63，80，100
Rated insulation level 额定绝缘水平	1 - minute power - frequency withstand voltage 1min工频耐受电压	kV	24	32	42	65
	Lightning impulse withstand voltage 雷电冲击耐受电压	kV	40	60	75	95
Degree of protection 防护等级		The enclosure has an IP4X protection rating, and when the compartment or the circuit breaker door is open, it has an IPX2 protection rating. 外壳为IP4X，隔室间、断路器室门打开时为IP2X				

Technical parameters KYN28A-12（24）series Switchgear
KYN28A-12（24）系列开关柜 技术参数
Technical Parameters of VS1, VD4 and 3AE Vacuum Circuit - breakers
VS1、VD4、3AE真空断路器技术参数

Project项目		Unit单位	12KVParameters 12KV 参数	24KVParameters 24KV参数
Rated voltage 额定电压		kV	3.6，7.2，12	24
Rated frequency 额定频率		Hz	50(60)	50(60)
Rated current of circuit breaker 断路器额定电流		A	630，1250，1600，2000， 2500，3150，4000，5000	630，1250，1600，2000， 2500
Rated current of switchgear 开关柜额定电流		A	630，1250，1600，2000， 2500，3150，4000，5000	630，1250，1600，2000， 2500
Rated thermal stability current 额定热稳定电流(4s)		kA	25，31.5，40，50（1S）	25,31.5,40
Rated dynamic stability current (peak value) 额定动稳定电流(峰值)		kA	63，80，100，125	63，80，100
Rated short - circuit breaking current 额定短路开断电流		kA	25，31.5，40，50	25，31.5，40
Rated short - circuit making current (peak value) 额定短路关合电流(峰值)		kA	63，80，100，125	63，80，100
Rated insulation level 额定绝缘水平	1 - minute power - frequency withstand voltage 1min工频耐受电压	kV	42	65
	Lightning impulse withstand voltage 雷电冲击耐受电压	kV	75	95
Rated operating sequence额定操作顺序			0-0.3s(180s)-C0-180s-C0	
Rated short - circuit breaking current interruption times额定短路开断电流开断次数		times/次	50	50
Mechanical life机械寿命		times/次	20000	10000

When the circuit breaker is used to control motors of 3 - 10kV, if the starting current is less than 600A, a metal oxide surge arrester must be installed. The specific requirements shall be negotiated between the user and the manufacturer. When the circuit breaker is used to interrupt capacitor banks, the rated current of the capacitor banks should not be greater than 80% of the rated current of the circuit breaker.

当断路器用于控制3~10kV电动机时，若起动电流小于600A，必须加金属氧化锌避雷器，其具体要求由用户与制造厂联系协商：当断路器用于开断电容器组时，电容器组的额定电流不应大于断路器额定电流的80%。

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Technical parameters of the operating mechanism

操作机构技术参数

Name Title名称		Unit单位	value数值
Rated Operating Voltage 额定操作电压	Closing coil 合闸线圈	V	DC220、110，AC220、110
	Opening coil 分闸线圈	V	DC220、110，AC220、110
Coil power 线圈功率	Closing coil 合闸线圈	W	245
	Opening coil 分闸线圈	W	245
Power of the energy - storing motor 储能电机功率		W	50
Rated Voltage of the Energy - storage Motor 储能电机额定电压		V	DC220、110，AC220、110
Energy storage time 储能时间		S	>10

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Structural Features

The switchgear cabinet consists of two major parts: the cabinet body and the centrally-mounted withdrawable component (i.e., the trolley) (see Figure 1).

The cabinet body is divided into four separate compartments. The enclosure protection rating is IP4X, and the protection rating between each compartment and when the circuit breaker compartment door is open is IP2X. This switchgear can be installed, commissioned and maintained from the front, so it can be installed back-to-back, in double-row arrangements and against the wall.

1. Enclosure and Others The main frame of the switchgear is made of imported aluminum-zinc coated steel sheets, and the multi-flanging process is adopted, which endows the entire cabinet body with the advantages of strong corrosion resistance and anti-oxidation.

2. Trolley The trolley has proper insulation coordination with the cabinet body and is equipped with safe mechanical interlocking. Depending on different purposes, the trolleys can be divided into circuit breaker trolleys, voltage transformer trolleys, metering trolleys, isolation trolleys and so on. All kinds of trolleys can be changed in a modular and building-block manner, and trolleys of the same specification can be freely interchanged with each other.

When the trolley needs to be removed from the cabinet body, it can be conveniently pulled out by using a special transfer vehicle. Due to the adoption of the central-mounted design, the whole trolley is small in size and convenient for inspection and maintenance.

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

结构特点

柜体是由柜体和中置式可抽出部件(即手车)两大部分组成 (见图1)。柜体分四个单独的隔室，外壳防护等级为IP4X，各小室间和断路器室门打开时防护等级为IP2X。本开关设备可以从正面进行安装、调试和维护，因此它可以背靠背、组成双重排列和靠墙安装.

1.外壳及其它

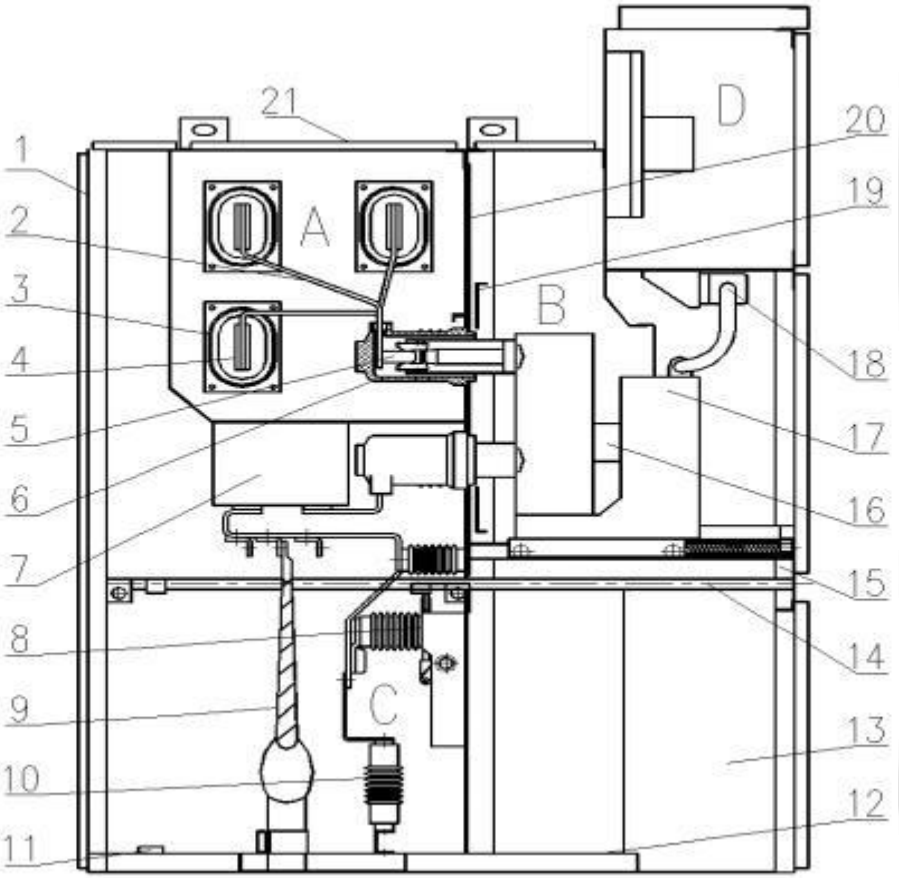
开关设备的主柜架是选用进口敷铝锌薄钢板，并采用多重折边工艺，使整个柜体具有很强的抗腐蚀与抗氧化作用的优点。

2.手车

手车与柜体绝缘配合，机械联锁安全。根据用途不同，手车分断路器手车、电压互感器手车、计量手车、隔离手车等。各类手车按模数，积木式变化，同规格手车可以互相自由互换。当手车需要移开柜体时，用一辆专用转运车，就可以方便抽出；由于采用中置式，整个小车体积小，检查、维护方便。

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数



Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Code代号	Location位置	9	primary cable一次电缆
A	Busbar compartment母线室	10	lightning arrester避雷器
B	Circuit breaker trolley compartment断路器手车室	11	Ground main bus接地主母线
C	Cable compartment电缆室	12	base plate底板
D	Relay and instrument room继电器仪表室	13	Secondary trunking二次线槽
1	shell外壳	14	Grounding switch operating mechanism接地开关操作机构
2	branch busbar分支母线	15	Pull-out horizontal partition可抽出式水平隔板
3	busbar bushing母线套管	16	heating device加热装置
4	main bus主母线	17	Circuit breaker handcart断路器手车
5	static contact静触头	18	Secondary plug二次插头
6	static contact box静触头盒	19	valve mechanism活门机构
7	Current transformer电流互感器	20	Removable partition装卸式隔板
8	Grounding switch接地开关	21	Relieve pressure泄压

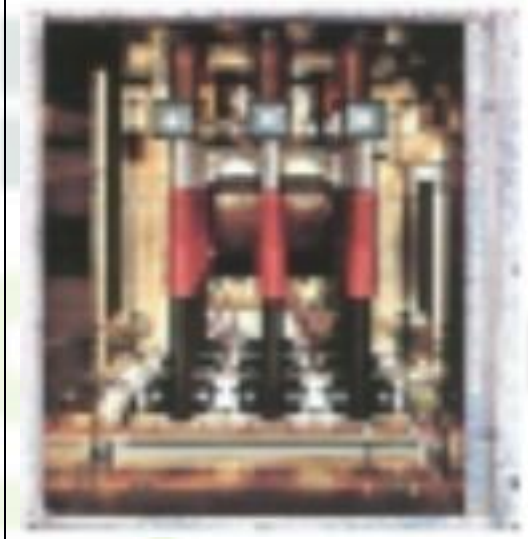
Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

circuit breaker compartment 断路器隔室		After the withdrawable circuit breaker is removed, the stationary contacts in the circuit breaker compartment are shielded by the shutter, and the circuit breaker compartment is protected. In the circuit breaker compartment, open the metal shutter to check the stationary contacts.	抽出式断路器移开后，断路器隔室内的静触头被活门遮蔽，断路器隔室被保护。 在断路器室内，打开金属活门检查静触头。
busbar compartment 母线隔室		1. Main busbar 2. Branch busbar 3. Bolt 4. Cushion block Connection type between the main busbar and the branch busbar.	1．主母线2．分支母线3．螺栓 4．垫块母线与支母线的联接型式

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

cable compartment 电缆隔室		The cable compartment has a relatively large space. If necessary, six single-core cables can be connected in parallel for each phase.	电缆室空间较大，必要时每相可并接6根单芯电缆。
Relay instrument room 继电器仪表室		The relay and instrument room can be equipped with relay protection components, instruments, live monitoring indicators and secondary equipment with special requirements.	继电器仪表室可安装继电保护元件、仪表、带电监察指示器，以及特殊要求的二次设备。

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

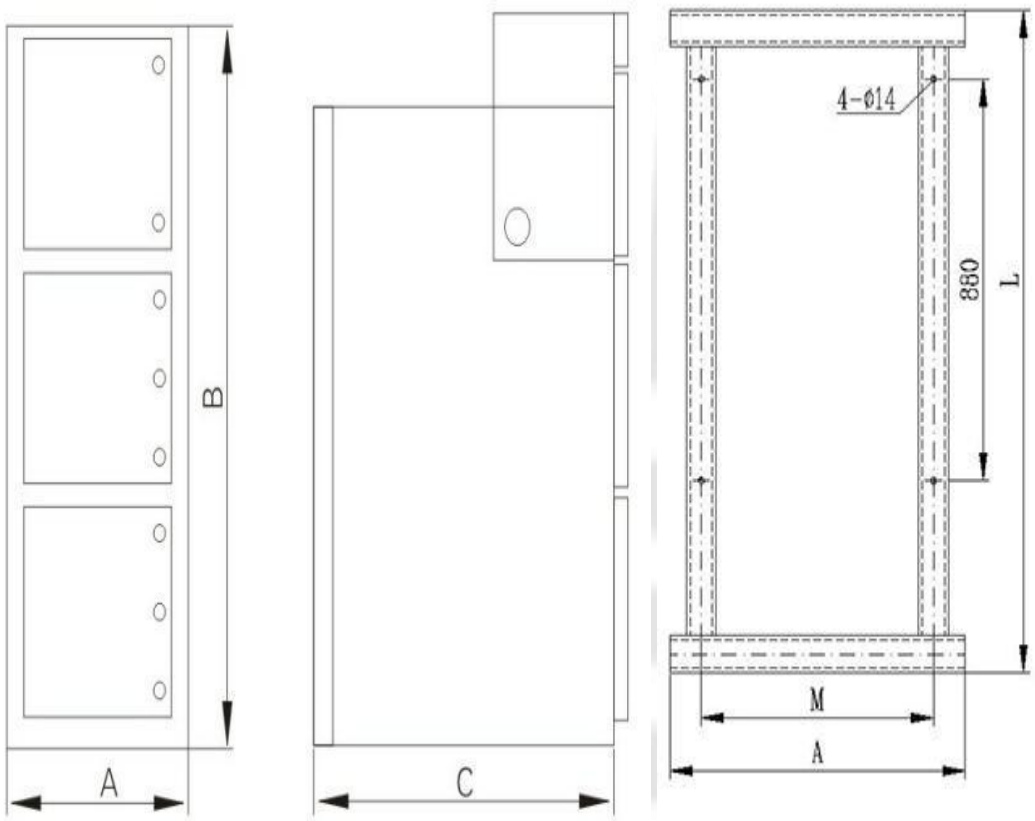


图 4 开关设备地基安装图

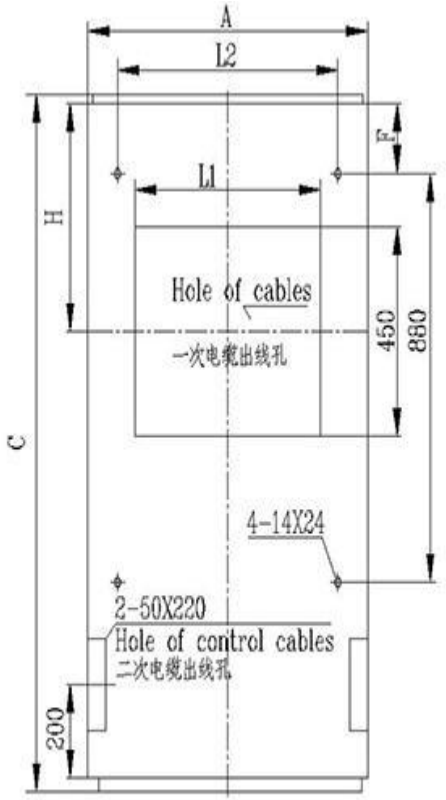


图 5 开关设备安装示意图

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Overall dimensions 外形尺寸		12KV	24KV
高H（mm）		2300	2430
宽W(mm)	≤1250A	800、650	1000
	1600A	800 or 1000	1000
	>1600A	1000	1000
深度D（mm）	Cable entry 电缆进线	1500	1850
	Overhead incoming line 架空进线	1660	2150

Switchgear installation and commissioning 开关设备安装和调试				
Voltage 电压	Width 柜宽A	deep 柜深C	M	L
12KV	650	1500	480	1450
		1660	480	1610
	800	1500	630	1450
		1660	630	1610
	1000	1500	830	1450
		1660	830	1610
24KV	1000	1850	830	1800
		2150	830	2100

Technical parameters KYN28A-12（24）series Switchgear

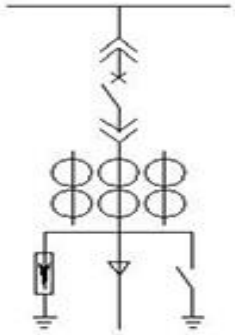
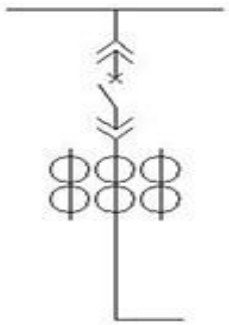
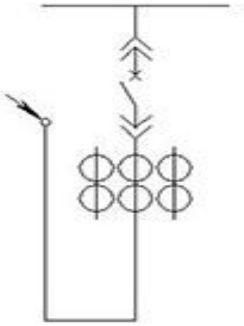
KYN28A-12（24）系列开关柜 技术参数

Switchgear installation and commissioning 开关设备安装和调试						
Voltage电压	Width柜宽A	deep柜深C	L1	L2	F	H
12KV	650	1500	380	480	150	490
		1660	380	480	310	650
	800	1500	530	630	150	490
		1660	530	630	310	650
	1000	1500	730	830	150	490
		1660	730	830	310	650
24KV	1000	1850	730	830	150	500
		2150	730	830	450	800

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

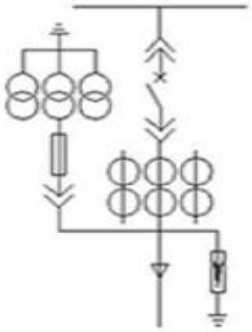
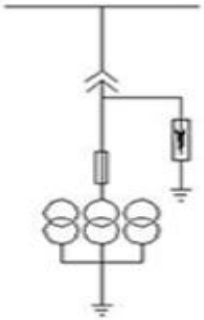
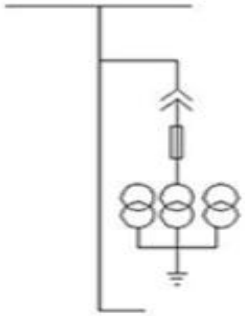
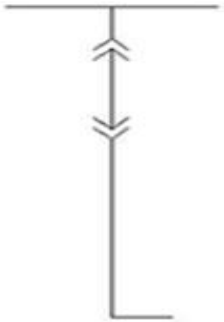
Main wiring scheme 主接线方案

方案号	006		011		021		026	
一次接线方案								
断路器	VS1 or VD4 or 3AE	1	VS1 or VD4 or 3AE	1	VS1 or VD4 or 3AE	1	VS1 or VD4 or 3AE	1
电流互感器	LZZBJ9-12(24)	3	LZZBJ9-12(24)	3	LZZBJ9-12(24)	3	LZZBJ9-12(24)	3
电压互感器								
接地开关	JN15-12(24)	1						
高压熔断器								
避雷器	HY5WS	3						

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

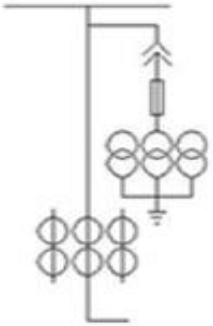
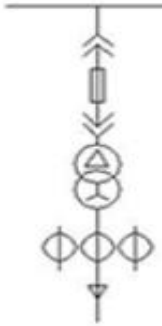
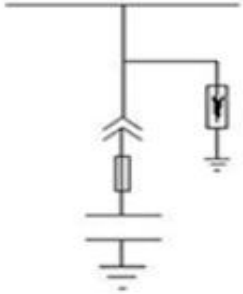
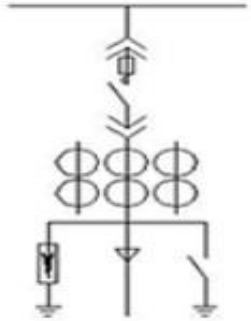
Main wiring scheme 主接线方案

方案号	034		041		047		056	
一次接线方案								
断路器	VS1 or VD4 or 3AE	1						
电流互感器	LZZBJ9-12(24)	3						
电压互感器	JDZX-10(20)	3	JDZX-10(20)	3	JDZX-10(20)	3		
高压熔断器	XRNP-0.5A	3	XRNP-0.5A	3	XRNP-0.5A	3		
接地开关								
避雷器	HY5WS	3	HY5WS	3				

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Main wiring scheme 主接线方案

方案号	068		077		078		079	
一次接线方案								
断路器								
电流互感器	LZZBJ9-12(24)	3	LMZ-0.66	3			LZZBJ9-12(24)	3
电压互感器	JDZX-10(20)	3	SC9	1	电容 BFM	3	接触器 VSC7-12(24)	1
高压熔断器	XRNP-0.5A	3	XTNT	3	RN2	3	XRNT	3
接地开关							JN15-12(24)	1
避雷器					HY5WS	3	HY5WS	3

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

Ordering Instructions

When ordering KYN28A-12(24) switchgear cabinets, the following technical information should be provided:

1. The serial number of the main wiring scheme diagram, its application, single-line system diagram, rated voltage, rated current, rated short-circuit breaking current, the layout plan of the distribution room and the arrangement and configuration diagram of the switchgear cabinets, etc.;

2. Requirements for the control, measurement and protection functions of the switchgear cabinets, as well as requirements and schematic diagrams for other interlocking and automatic devices;

3. The model, specification and quantity of the main electrical components inside the switchgear cabinets;

4. If busbar bridges are needed for connection between switchgear cabinets or for the incoming line cabinets, specific requirement data such as the rated current-carrying capacity of the busbar bridges, the span of the busbar bridges and the height above the ground should be provided;

5. When the switchgear cabinets are used under special environmental conditions, detailed descriptions should be provided at the time of ordering;

6. For other special requirements, detailed written descriptions and consultations must be carried out before ordering. If there are transformer cabinets used in the order contract, please construct the foundation according to the provided foundation drawings.

Technical parameters KYN28A-12（24）series Switchgear

KYN28A-12（24）系列开关柜 技术参数

订货须知

KYN28A-12(24)开关柜订货时应提供下列技术资料

1.主接线方案图编号、用途和单线系统图、额定电压、额定电流，额定短路开断电流、配电室平面布置图及开关柜的排列配置图等；

2.开关柜控制、测量及保护功能的要求以及其它闭锁和自动装置的要求及原理图；

3.开关柜内主要电气元件的型号，规格及数量；

4.如开关柜之间或进线柜需要母线桥连接，应提供母线桥的额定载流量，母线桥的跨度，距地高度等具体要求数；

5.开关柜使用在特殊环境条件时，应在订货时详细说明；

6.其它特殊要求，在订货前须详细书面说明、协商。如订货合同中有所用变柜，地基制作请按照提供的基础图施工。

Schneider MVnex metal - enclosed medium - voltage switchgear cubicle - type
施耐德MVnex 中置式金属封闭开关柜

MVnex Series Configuration Schemes

● MVnex 12kV (Standard Product)

○ With parameters that can reach 4000A and 40kA, it fully meets the requirements of projects and further broadens the industrial applications.

● MVnex 24kV

○ It meets the needs of the electronics industry and 12kV high-altitude projects.

● MVnex 550 (Compact Type)

○ With a cabinet width of 550mm, it meets the requirements of projects for miniaturized medium-voltage switchgear with withdrawable circuit breakers.

● MVnex 500 (Ultra-Compact Type)

○ With a cabinet width of 500mm, it meets the requirements of projects for miniaturized fixed cabinets.

● Smart MVnex (Intelligent Type)

○ It is an intelligent medium-voltage switchgear that meets the requirements of intelligent projects.

MVnex 全系列配置方案

● MVnex 12kV（标准产品）

○ 参数可达 4000A，40kA，全面满足项目的需求，行业应用进一步拓宽

● MVnex 24kV○ 满足电子行业及 12kV 高海拔项目需求

● MVnex 550（紧凑型）

○ 550mm 柜宽，满足小型化中置手车式开关柜的项目需求

● MVnex 500（超紧凑型）

○ 500mm 柜宽，满足小型化固定柜的项目需求

● Smart MVnex（智能型）

○ 智能中压开关柜，满足智能化的项目需求

MVnex 12kV (Standard Product)
MVnex 12kV（标准产品）

● **High Parameters**

○ Maximum Parameters: 12kV, 4000A, 40kA

○ Seismic Resistance Level: Degree 8 (AG3)

○ Earthing Switch: 40kA/4s

○ Internal Arc Resistance Level: 40kA for 1s

Complete Solutions

○ Cabinet Width: 650mm / 800mm / 1000mm

○ Covering circuit breaker cabinets, contactor cabinets and other special cabinet types

○ Equipped with HVX solid-insulated pole vacuum circuit breakers / CVX solid-insulated pole vacuum contactors inside.

● **高参数**

○ 最高参数：12kV, 4000A, 40kA

○ 抗震等级：8 度（AG3）

○ 接地开关：40kA/4s

○ 抗内部电弧等级：40kA 1s

方案全

○ 柜宽：650mm/800mm/1000mm

○ 涵盖断路器柜、接触器柜以及其他特殊柜型

○ 内置 HVX 固封极柱真空断路器 /CVX 固封极柱真空接触器

MVnex 550 (Compact Type)
MVnex 550（紧凑型）

Compact Solutions

● Small in size and more flexible

○ The cabinet width is only 550mm.

○ Maximum parameters: 12kV, 1250A, 31.5kA

○ The floor area can be reduced by more than 40% compared with that of traditional cabinets.

○ Flexible combination. It can be directly combined with high-current cabinets, making it easy to expand capacity.

紧凑型解决方案

● 小身材、更灵活

○ 柜宽仅 550mm

○ 最高参数：12kV, 1250A, 31.5kA

○ 占地面积可比传统柜减少 40% 以上

○ 灵活组合，可与大电流柜直接拼，易于扩容

MVnex Series Configuration Schemes

MVnex 全系列配置方案)

MVnex 24kV

Cabinet Type Parameters

○ Technical Parameters: 24kV ~ 1250A/2500A, 31.5kA

○ Earthing Switch: 31.5kA/4s

○ Internal Arc Resistance Level: 31.5kA/1s

柜型参数○ 技术参数：

24kV~1250A/2500A,31.5kA

○ 接地开关：31.5kA/4s

○ 抗内部电弧等级：31.5kA/1s

MVnex 500 (Ultra-Compact Type)

MVnex 500（超紧凑型）

The Leader in Miniaturized Switchgear

● Reduce the civil construction area of the distribution room by 60%

○ The cabinet width is only 500mm.

○ Maximum parameters: 12kV, 1250A, 31.5kA

○ It can be installed against the wall reliably, and only a 1m operating aisle is required in front of the cabinet.

● Application Areas

○ Tramways

○ Bridges and tunnels

○ Commercial buildings

○ Port machinery and bridge cranes

小型化开关柜领导者

● 减少 60% 配电室土建面积

○ 柜宽仅 500mm

○ 最高参数：12kV, 1250A, 31.5kA

○ 可靠墙安装，柜前只需 1m 操作通道

● 应用领域

○ 有轨电车○ 桥梁、隧道○ 商业建筑○ 港机、桥吊

ABB Medium-Voltage Switchgear

UniSafeABB中压开关柜UniSafe

Product Advantages:

1. Miniaturization with large space. The width of the standard outgoing line cabinet is only 600mm. Compared with the traditional KYN28 cabinet, it can save space resources and the use of raw materials.
2. The integrated contact box can improve the assembly accuracy and enhance the inter-phase insulation; it can also avoid the eddy current that may be generated by the metal mounting plate of the independent contact box.
3. A complete range of primary wiring schemes is available, with multiple schemes that meet the requirements of various regions in China.
4. It is equipped with the VD4 circuit breaker with comprehensively improved performance. The PT pole (including the vacuum interrupter) imported from Germany is adopted, ensuring high quality and high reliability.
5. The mechanical life of the circuit breaker reaches 40,000 times, which is more than 33% higher than that of similar products, making the operation more reliable.

产品优势：

1.小型化、大空间，标准出线柜宽度仅为600mm，相比传统KYN28柜，可以节约空间资源，节约原材料使用

2.一体式触头盒可提高装配精度，增强相间绝缘；避免独立触头盒金属安装板可能产生的涡流

3.一次接线方案齐全，有符合国内各区域要求的多种方案

4.配置性能全面提升的VD4断路，采用进口德国PT极柱（含真空泡），高品质、高可靠性

5.断路器机械寿命达40000次，高出同类产品33%以上，操作更可靠

ABB Medium-Voltage Switchgear

UniSafeABB中压开关柜UniSafe

Product Features:

1. The design of the cabinet body perfectly matches with the ABB VD4 circuit breaker, resulting in more reliable performance.
2. Multiple anti-misoperation and interlocking designs work together to ensure the safety of operators.
3. The entire cabinet meets the operation and safety requirements of Loss of Service Continuity Category LSC2B (metal-clad) / Partition Class PM (metal partition).
4. Abundant independent compartments can ensure the safety of operators and equipment.
5. The earthing switch has a lifespan of up to 3000 operations and is capable of quickly closing short-circuit currents.

产品特点：

1.柜体的设计跟ABBVD4断路器进行完美配合，性能更加可靠

2.多种防误和联锁设计共同确保操作人员的安全性

3.整柜满足运行连续性丧失类别LSC2B(金属铠装）/隔板等级PM（金属隔板）的运行及安全要求

4.丰富的独立隔室，可确保操作人员及设备的安全

5.接地开关寿命达3000次，具备快速关合短路电流能力

ABB Medium-Voltage Switchgear

UniSafeABB中压开关柜UniSafe

The rated characteristics of the switchgear can be ensured under the following environmental conditions:

Minimum ambient temperature: – 5 ° C

Maximum ambient temperature: + 40 ° C

Ambient humidity:

Maximum 24-hour average relative humidity: 95% RH

Maximum 24-hour average water vapor pressure: 2.2 kPa

Maximum monthly average relative humidity: 90% RH

Maximum monthly average water vapor pressure: 1.8 kPa

It can normally operate at altitudes up to 1,000 meters. For applications at higher altitudes, please consult us.

There is a normal, non-corrosive and pollution-free atmosphere.

If you want to learn more about the relevant technical knowledge of the UniSafe medium-voltage cabinet, please contact us.

在以下环境条件下，可保证开关设备的额定特性：

最低环境温度：– 5 ° C

最高环境温度：+ 40 ° C

环境湿度：

最大24小时平均相对湿度95％RH

最大24小时平均水蒸气压力2.2千帕

最大月平均相对湿度90％RH

最大月平均水蒸汽压力1.8千帕

正常工作最高可达海拔1000米。对于更高海拔的应用，可咨询我们。

存在正常、无腐蚀性和无污染的大气

如果您想了解更多有关uniSafe中压柜的相关技术知识，请联系我们。

XGN15-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear

XGN15-12交流高压金属封闭环网开关柜

Product Features:

★ The outer shell of the switchgear cabinet is made of imported aluminum-zinc coated sheets or high-quality steel plates. Processed by CNC machine tools, it features high assembly precision, good overall rigidity, light weight and an aesthetic appearance.

★ The outer shell of the cabinet has strong anti-corrosion and anti-oxidation properties, with a protection level of IP4X. The switchgear is air-insulated, and the air clearance is not less than 125mm. It integrates the functions of load switch, isolation and earthing.

★ It can only be in one of the positions of "closed", "open" or "earthed", and has a natural interlocking function to prevent misoperation.

★ SF6 gas has excellent arc extinguishing ability, a long electrical life and good sealing performance, with an annual gas leakage rate of no more than 1%.

★ With a modular design, it has a compact structure, is applicable to different occasions and is easy to install.

★ Equipped with an electric actuator, it can realize the "three-remote" functions (remote control, remote signaling and remote measurement).

★ The entire switchgear can be divided into upper and lower parts. This structure can maximize the protection of personal safety and the reliability of the operating equipment.

XGN15-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear

XGN15-12交流高压金属封闭环网开关柜

产品特点：

★开关柜柜体外壳选用进口敷铝锌板或优质钢板，经CNC机床加工，具有装配精度高、整体刚度好、重量轻、外形美观等特点;

★柜体外壳具有很强的抗腐蚀和抗氧化作用，防护等级IP4X，开关柜为空气绝缘，空气净距不小于125mm。集负荷开关、隔离、接地于一体;

★只能处于“闭合”、“断开”、“接地”中的一个位置，具有防止误操作的自然闭锁功能;

★SF6气体具有优异的灭弧能力，电寿命长，密封性能好，年漏气≤1%;

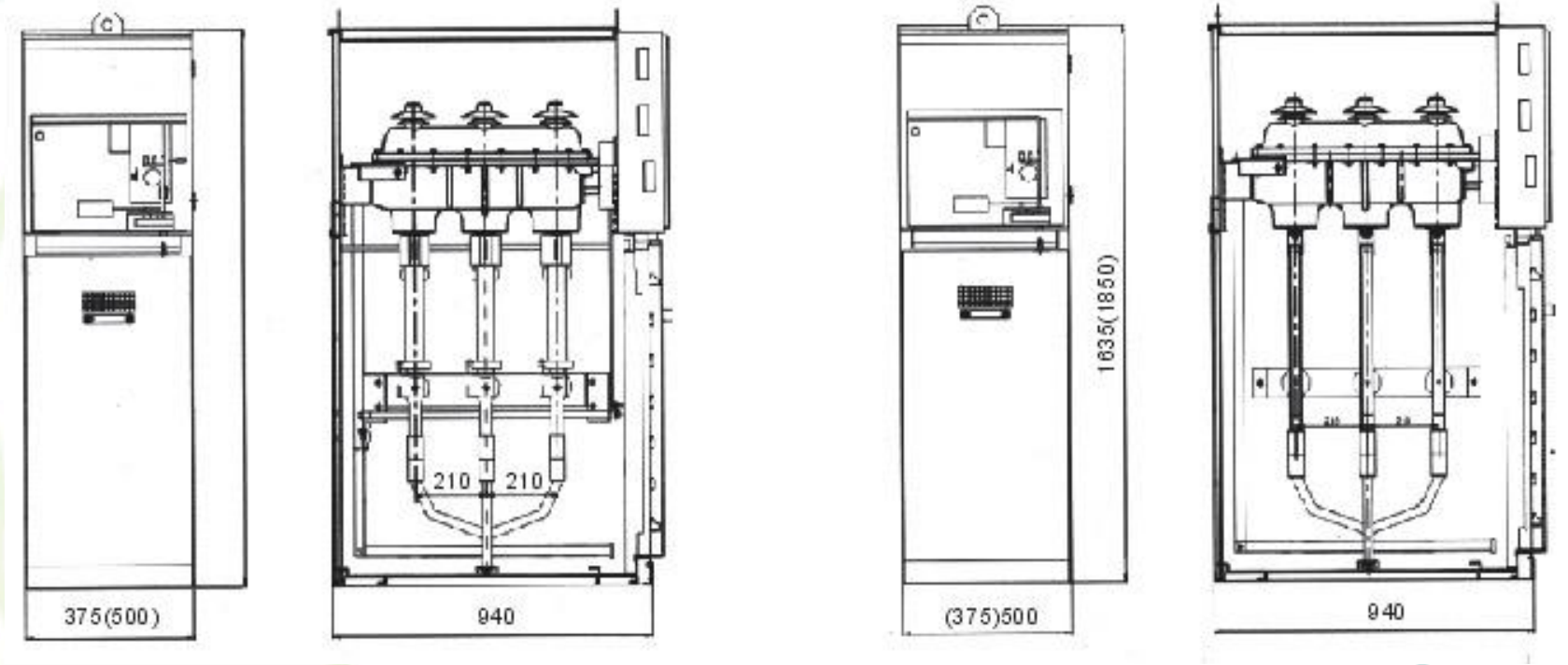
★模块化设计,结构紧凑,适用于不同场合,并易于安装;

★加装电动机构,可实现“三遥”功能;

★整个开关柜可分上下两部分，此结构能最大限度的保障人身安全和运行设备的可靠。

XGN15-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear

XGN15-12交流高压金属封闭环网开关柜



XGN15-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear

XGN15-12交流高压金属封闭环网开关柜

project项目		unit单位	data数据
Rated voltage额定电压		kV	12
Rated insulation level 额定绝缘 水平	1min working withstand voltage 1min工耐受电压	kV	42
	Lightning impulse withstand voltage 雷电冲击耐受电压	kV	85
Rated frequency 额定频率		Hz	50
Main bus rated current 主母线额定电流		A	1250
Branch bus rated current 分支母线额定电流		A	630
Rated short-time withstand current (effective value) 额定短时耐受电流(有效值)		kA/S	25/2
Rated peak withstand current 额定峰值耐受电流		kA	63

XGN15-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear

XGN15-12交流高压金属封闭环网开关柜

Ordering Instructions

When ordering high-voltage ring network switchgear, the following information must be provided:

1. The serial number of the main circuit scheme, the main wiring system diagram, the arrangement diagram and the floor plan of the high-voltage ring network switchgear.
2. The electrical schematic diagram of the auxiliary circuit and the terminal arrangement diagram.
3. The model, specification and quantity of the electrical components inside the switchgear.
4. The names and quantities of spare parts and accessories.
5. In case of special requirements, please negotiate with our company.

订货须知

高压环网柜订货时须提供下列资料：

1高压环网柜的主电路方案编号、主结线系统图、排列图、平面布置图。

2辅助回路电气原理图、端子排列图。

3开关设备内电器元件的型号、规格、数量。

4备品、配件的名称及数量

5有特殊要求情与本公司协商。

HXGN17-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear
HXGN17-12交流高压金属封闭环网开关柜

HXGN17-12 box-type fixed AC metal-enclosed switchgear (hereinafter referred to as the ring main unit) has a rated voltage of 12 kV. It is a complete set of AC high-voltage electrical equipment with a rated frequency of 50 Hz. It is mainly used in three-phase AC ring networks, terminal distribution grids and industrial electrical equipment, playing roles such as receiving and distributing electrical energy. It is also suitable for being equipped in box-type substations.

HXGN17-12箱式固定交流金属封闭开关设备(简称环网柜)是额定电压12kv。额定频率5 0 H z的交流高压成套电器装置，主要用于三相交流环网，终端配电网和工业用电设备，起接受、分配电能和等作用，它也适于装备入箱式变电站。

HXGN17-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear
HXGN17-12交流高压金属封闭环网开关柜

1. Ambient air temperature: -15℃ to +40℃.
2. Altitude: 1000m and below.
3. Humidity conditions: The daily average value shall not be greater than 95%, and the daily average value of water vapor pressure shall not exceed 2.2 kPa.
4. The monthly average value shall not be greater than 90%, and the monthly average value of water vapor pressure shall not exceed 1.8 kPa.
5. Seismic intensity: Not exceeding 8 degrees.
6. Places without obvious pollution such as corrosive or flammable gases.

Note: When the above normal operating conditions are exceeded, the user can negotiate with our company.

HXGN17-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear
HXGN17-12交流高压金属封闭环网开关柜

1.周围空气温度：-15℃- +40℃；

2.海拔高度：1000m 及以下；

3.湿度条件：日平均值不大于95%, 水蒸气压力日平均值不超2.2kPa;

4.月平均值不大于90%, 水蒸气压力月平均值不超过1.8kPa。

5.地震烈度：不超过8 度；

6.没有腐蚀性或可燃性气体等明显污染的场所。

注：超出上述正常使用条件时，用户可与本公司协商。

HXGN17-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear

HXGN17-12交流高压金属封闭环网开关柜

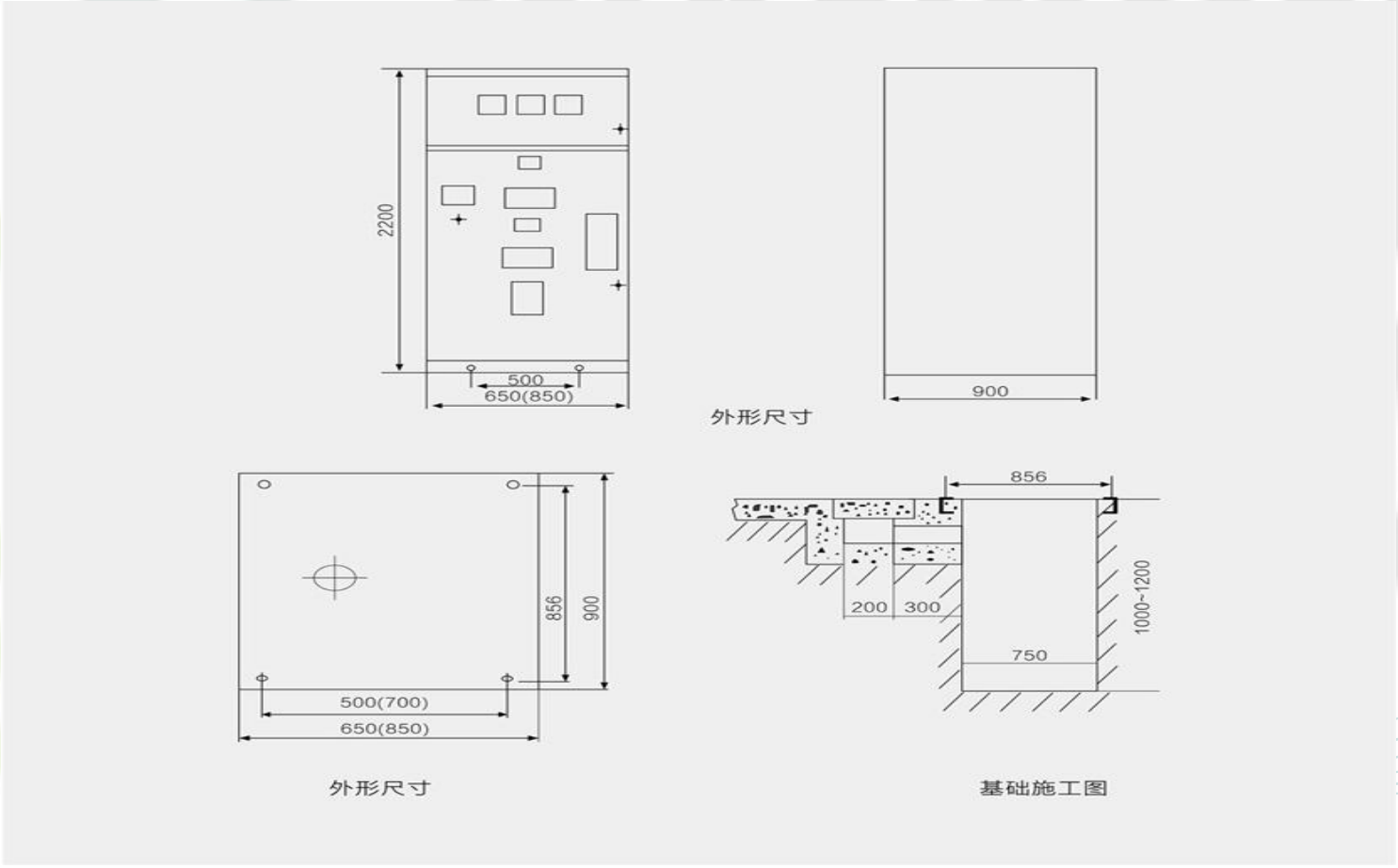
Main parameters 主要参数

Project项目	unit单位	FN12-10	FZN25-12
Fuse rated current 熔断器额定电流	A	100	
Rated transfer current 额定转移电流	A	1500	2000
Rated short-circuit interrupting current 额定短路开断电流	KA	31.5	
Mechanical life机械寿命	T次	2000	10000
The auxiliary circuit has a power frequency withstand voltage of 1min 辅助回路1min工频耐压	KV	2	
The working voltage of the electric operating mechanism 电动操作机构工作电压	V	220；110	
Ingress protection 防护等级		IP2X	
Dimensions 外形尺寸（W宽*d深*H高）	Mm	650*900*2000	850*900*2200

HXGN17-12 AC High-Voltage Metal-Enclosed Ring Network Switchgear

HXGN17-12交流高压金属封闭环网开关柜

Installation dimensions 安装尺寸



XGN66-12（Z）High-Voltage Metal-Enclosed Ring Network Switchgear
XGN66-12（Z)交流高压金属封闭环网开关柜

overview

The XGN66-12 type fixed enclosed switchgear (hereinafter referred to as the switchgear cabinet) is a complete set of high-voltage electrical products of our company, which complies with the international standard IEC60298 "Requirements for AC metal-enclosed switchgear and controlgear for voltages above 1 kV and up to and including 52 kV".

This product has absorbed advanced technologies. It is small in size, only 50% of the volume of ordinary switchgear cabinets. The circuit breaker has the advantages of high reliability and good performance. The "five-prevention" interlocking mechanism is reliable and simple.

The switchgear cabinet is an indoor complete set of equipment with a single busbar section for three-phase alternating current of 3.6, 7.2 and 12 kV at 50 Hz. It is used for receiving and distributing electrical energy. It also has functions such as controlling, protecting and monitoring circuits. It can be used in various types of power plants, substations, industrial and mining enterprises, high-rise buildings and other places. It can also be combined with ring main units and applied in switching stations.

XGN66-12（Z）High-Voltage Metal-Enclosed Ring Network Switchgear
XGN66-12（Z)交流高压金属封闭环网开关柜

概述

XGN66-12型固定式封闭开关设备(以下简称开关柜) 是我公司高压电器成套产品，符合国际标准IEC60298《1kV 以上 52kV 以下交流金属封闭开关设备和控制设备的要求》。 该产品吸收先进技术，它体积小，仅是普通开关柜体积的5 0%；断路器具有可靠性高，性能好； “五防”联锁机构可靠、 简单等优点。开关柜是3.6、7.2、12kV 三相交流电 50Hz 单母线分段的户内成套装置，作为接受和分配电能之用。并具有对电 路进行控制、保护和监测等功能，可使用在各类型发电厂、变电站及工矿企业，高层建筑等场所，也可与环网柜组合应用于开闭所中。

XGN66-12（Z）High-Voltage Metal-Enclosed Ring Network Switchgear
XGN66-12（Z)交流高压金属封闭环网开关柜

Scope of application

1. The altitude shall not exceed 1000 meters.

2. Ambient temperature: ranging from -25℃ to +40℃, and the average temperature within 24 hours shall not exceed +35℃.

3. The horizontal inclination shall not be greater than 3 degrees.

4. The seismic intensity shall not exceed magnitude 8.

5. There shall be no places with severe vibration, impact or explosion hazards.

适用范围

1.海拔高度不超过1000m.

2.环境温度: - 25℃- +40℃，24小时内平均温度不超过+35℃。

3.水平倾斜度不大于3 度。

4.地震烈度不超过8 级。

5.无剧烈振动和冲击及爆炸危险场所。

XGN66-12（Z）High-Voltage Metal-Enclosed Ring Network Switchgear
XGN66-12（Z)交流高压金属封闭环网开关柜

Features:

1. The cabinet body is welded by high-quality angle steel.

2. The circuit breaker compartment is located in the middle (lower) part of the cabinet body, which is convenient for installation, debugging and maintenance. It is equipped with the VS1 circuit breaker as a standard configuration, and there is a pressure relief channel to ensure personal safety.

3. Advanced and reliable rotary disconnectors are adopted, allowing for safe entry into the circuit breaker compartment for maintenance while the main busbar is energized.

4. The protection level of the whole cabinet is IP2X.

XGN66-12（Z）High-Voltage Metal-Enclosed Ring Network Switchgear
XGN66-12（Z)交流高压金属封闭环网开关柜

5. There is a reliable and fully functional mandatory mechanical locking device, which simply and effectively meets the requirements of the "five-prevention" measures.

6. It has a reliable grounding system.

7. The door is equipped with an observation window, through which the working status of the components inside the cabinet can be clearly observed.

8. The locking of the operating mechanism adopts the JSXGN locking mechanism used in the XGN2-12 cabinet, which is simple, reliable, convenient and practical.

9. The incoming and outgoing cables are located below the front part of the cabinet, facilitating connection by users.

XGN66-12（Z）High-Voltage Metal-Enclosed Ring Network Switchgear
XGN66-12（Z)交流高压金属封闭环网开关柜

产品特点

1.柜体采用优质角钢焊接而成。

2.断路器室位于柜体中(下) 部，安装、调试、维护方便。标准配装VS1 断路器，并设有压力释放通道，确保人身安全。

3.采用先进可靠的旋转式隔离开关，可在主母线带电下安全进入断路器室检修。

4.整柜防护等级IP2X。

5.设有可靠功能齐全的强制性机械闭锁装置，简便有效达到“五防”要求。

6.具有可靠的接地系统。

7.门上装有观察窗，可清楚观察到柜内元件地工作状态。

8.操作机构闭锁采用同XGN2-12 柜用的JSXGN 闭锁机构，简单可靠方便实用。

9.进出线电缆低于柜体前部，方便用户连接

CGN66-12（Z） High-Voltage Metal-Enclosed Ring Network Switchgear

XGN66-12（Z）交流高压金属封闭环网开关柜

Project 项目	unit 单位	Technical parameters 技术参数
Rated voltage额定电压	KV	3.6,7.2,12
Rated power frequency withstand voltage 额定工频耐受电压	KV	to the ground, interphase 42; Fracture 48 对地，相间42；断口48
Rated lightning impulse withstand voltage 额定雷电冲击耐受电压	KV	to the ground, interphase 42; Fracture 48 对地，相间75；断口85
Rated frequency额定频率	HZ	50
Current rating额定电流	A	630,1250
Rated short-circuit interrupting current (RMS) 额定短路开断电流（有效值）	KA	20,25,31.5
Rated short-circuit opening and closing current (peak) 额定短路开合电流（峰值）	KA	50,63,80
Rated dynamic and stable current (peak) 额定动稳定电流（峰值）	KA	50,63,80
Rated thermal stability current 4s (RMS) 额定热稳定电流4s（有效值）	KA	20,25,31.5
Ingress protection 防护等级		IPX2
Dimensions 外形尺寸（W宽*d深*H高）	Mm	900*1000*2200
Weight重量	Kg	600

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜

Product Overview

The MNS2.0 type low-voltage withdrawable switchgear cabinet (hereinafter referred to as the switchgear cabinet) was developed by our company after adopting the technology of the MNS series low-voltage switchgear of Swiss ABB Company and making comprehensive improvements. It is currently one of the more advanced low-voltage withdrawable switchgear in China. This product is composed of standardized and serialized modules, and the drawers are equipped with reliable mechanical interlocking devices, making it safer and more reliable for users during operation.

This switchgear cabinet is applicable to the power supply systems with three-phase five-wire system, AC 50 (60) Hz, rated insulation voltage and working voltage of 380 (400) V, 690 V, and rated current of 6300 A and below. It can be used in power plants, substations, industrial and mining enterprises, office buildings, hotels, airports, docks, as well as communication centers such as radio and television. It is used for power generation, power transmission and distribution, power conversion and the control of power-consuming equipment, and it can also perform reactive power compensation for its main busbar through capacitor compensation.

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜

产品概述

MNS2.0型低压抽出式开关柜（以下称开关柜）是我公司采用了瑞士ABB公司的MNS系列低压开关柜技术并加以综合改进后开发的，是目前国内较先进的低压抽出式开关设备。该产品均由标准化的、成系列的模块组成，并且抽屉具有可靠的机械联锁装置，使用户在使用时更安全、更可靠。

本开关柜适用于交流50（60）HZ、额定绝缘电压和工作电压为380（400）V、690v、额定电流6300A及以下三相五线制的电力供电系统，可用于发电厂、变电所、工矿企业、大楼宾馆、机场、码头以及广播电视等通信中心，作为发电、输配电、电能转换及对电能消耗设备的控制，并通过电容补偿对其主母线进行无功补偿。

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜

Operating Conditions

1. The ambient air temperature shall not be higher than +40°C nor lower than -5°C, and the average temperature within 24 hours shall not be higher than +35°C.
2. The relative humidity of the ambient air shall not exceed 50% when the maximum temperature is +40°C. There will be a relatively higher relative humidity at lower temperatures, for example, 90% at +20°C. However, due to temperature changes, moderate condensation may occasionally occur.
3. When used indoors, the altitude of the place of use shall not exceed 2000m.
4. It should be installed in places without severe vibration and impact and where electrical components will not be corroded.

使用条件

1.周围空气温度不高于+40℃，不低于-5℃，而且24h内其平均温度不高于+35℃。

2.周围空气相对于湿度在最高温度为+40℃时不超过50%，在较低温度时有较大的相对湿度，如+20℃时为90%，但考虑到由于温度的变化有可能会偶然产生适度的凝露。

3.户内使用时，使用地点的海拔高度不超过2000m。

4.应安装在无剧烈震动和冲击，以及不使电器元件受到腐蚀的场所。

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜

Features

1. For the upper ventilation doors, cable compartment doors and rear doors, the rotating parts have been changed from concealed hinges to exposed hinges. This makes the doors rotate smoothly with a larger rotation angle. Meanwhile, it also looks more beautiful than before and the overall effect is more harmonious.

2. Before the improvement, the primary transfer components were directly connected to the plastic functional components. In case of special failures that caused the primary transfer components to burn out, it would bring great difficulties to on-site maintenance and a relatively long replacement time would be required. After the improvement, since the primary transfer components are installed independently, maintenance becomes convenient, power outage time is reduced, and the economic effect is remarkable.

3. The outgoing of primary cables in the MCC cabinet is more convenient and flexible. Compared with before, in addition to retaining the original side-out and rear-out schemes, a hybrid scheme of simultaneous side-out and rear-out has been added, which greatly facilitates users.

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜

4. For the specifications of the primary electrical connections inside the 8E, 16E and 24E unit drawers, cables can be selected according to the actual current magnitude of the circuits, which is beneficial to users' on-site maintenance and modifications.

5. After the improvement, compared with the previous structure of the rear door in the rear-outgoing scheme, the central column has been re-optimized, thus increasing the space for outgoing cables and facilitating users' maintenance.

6. After the improvement, the secondary connectors in the rear-outgoing scheme have been moved from the side position to the position of the rear partition. In this way, not only is the distance from the secondary cables to the terminals reduced, but also the problem that maintenance cannot be carried out after cabinets are combined on site (which is likely to occur in the 600mm-wide rear-outgoing scheme) is avoided.

7. The top cover with a flip door is convenient to install, saving effort and time.

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜

特点

1.上通风门、电缆室门和后门，转动部分由暗铰链改为明铰链，这使得门转动平稳，转动角度更大，同时也比以前要美观，整体效果更加协调。

2.改进前，一次转接件与塑料功能件直接相连。假如发生特殊故障，导致一次转件烧毁，这样会给现场的维修带来较大的困难，更换时间较长。而改进后，由于一次转件改为独立安装维修方便，减少了停电时间，经济效果显著。

3.MCC柜的一次电缆出线方便更加灵活。相比以前，除了保留原有的侧出和后出的方案，更增加了同时侧出和后出的混合方案，极大的方便了用户。

4.8E、16E和24E单元抽屉内的一次电联的规格可以根据回路的实际电流大小选择电缆，这有利于用户现场的维修和更改。

5.改进后，后出线方案的后门结构与以前相比，对中立柱进行了重新优化，从而增加了出线电缆的空间，便于用户维修。

6.改进后，后出线方案的二次接插件由侧面位置改到后隔板位置。这样，不但减少了二次电缆到端子的距离，而且避免了因现场柜子并柜后无法维修的问题。（600mm宽后出线方案容易产生）。

7.可翻门式顶盖，安装方便，省力省时。

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Technical parameters 技术参数

Standards and Technical Specifications 标准及技术规范	GB7251.11997(IEC60439-1:1999,IDT)低压成套开关设备和控制设备（TTA)
	JB/T9661-1999低压抽出式开关成套设备
Overvoltage category 过电压类别	IV III
Pollution level 污染等级	3
Rated Operating Voltage (Ue)(v) 额定工作电压（Ue)(v)	380(660)
Rated insulation voltage (Ui)(V) 额定绝缘电压(Ui)(V)	660(1000)
Rated Frequency (HZ) 额定频率（HZ)	50(60)
Horizontal busbar 水平母线	Copper busbar铜母线
Current rating 额定电流	6300A 5000A 4000A 3150A 2500A 2000A 630A
Rated Peak Withstand Current (Ipk)(kA) 额定峰值耐受电流(Ipk)(kA)	105,140,176.(0.1s 最大值)
Rated short-time withstand current (Icw)(kA) 额定短时耐受电流(Icw)(kA)	50,65,80 (1s 有效值)

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Vertical busbar 垂直母线	Copper busbar铜母线
Rated maximum operating current 额定最大工作电流	≤1250A
Rated short-time withstand current 额定短时耐受电流	50kA
Rated peak withstand current 额定峰值耐受电流	105kA

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Basic dimensions of various cabinet types 各类柜型基本尺寸

Motor Control Center (MCC) cabinet and capacitance compensation cabinet

电机控制中心（MCC）柜及电容补偿柜

	MCC柜 MCC cabinet			电容补偿柜 Compensate cabinet
高Height(mm)	2200			2200
宽Width(mm)	600	800	1000	800 1000
深Depth(mm)	1000 800	1000, 800	1000, 800,600	800, 1000

Power receiving cabinet and contact cabinet

受电柜及联络柜

Main bus adapter cabinet 主母线转接柜	1台断路器	
高(mm)	2200	2200
宽(mm)	400	600 800 1000
深(mm)	800 1000	800 1000
备注	4000A and below circuit breakers 4000A及以下断路器	

Power Center (PC) cabinet

动力中心（PC）柜

	2台断路器	3台断路器
高(mm)	2200	2200
宽(mm)	800 1000	800 1000
深(mm)	800 1000	800 1000
备注	3200A及以下断路器	

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

breakers断路器	E1		E2			E3			E4		E6		
Number of poles极数	3P 4P		3P 4P			3P 4P			3P 4P		3P 4P		
Rated current(A)额定电流（A）	800 1000、1250、1600		1600、2000			2500、3200			3200、4000		5000 、6300		
Rated Frequency (Hz)额定频率（Hz）	50（60）		50（60）			50（60）			50（60）		50（60）		
Rated voltage (V)额定电压（V）	400、690		400、690			400、690			400、690		400、690		
Rated insulation voltage (V)额定绝缘电压（V）	1000		1000			1000			1000		1000		
Rated impulse withstand voltage (KV)额定冲击耐受电压（KV）	12		12			12			12		12		
Rated operating short-circuit breaking capacity (KA) 额定运行短路分断能力（KA）	N	S	N	S	L	S	H	L	S	H	V	H	V
	50	65	65	85	130	75	85	130	75	100	150	100	125
Rated Limit Short Circuit Breaking Capacity (KA) 额定极限短路分断能力（KA）	50	65	65	85	130	75	100	130	75	100	150	100	150
Rated short-circuit turn-on capability (KA) 额定短路接通能力（KA）	105	143	143	187	286	165	220	286	165	220	330	220	330
Rated short-time withstand current (1S)(KA) 额定短时耐受电流(1S)（KA）	50	65	55	65	10	75	75	15	75	100	100	100	100
Operations per hour (times)每小时操作次数（times）	30	30	30	30	20	20	20	20	10	10	10	10	10
Mechanical life (1000 times)机械寿命e(1000 times) Electrical life(times)电气寿命（times）	详见ABB Emax 使用说明书												
Full Breaking Time I<Icw(ms)全分断时间I＜Icw(ms)	70	70	70	70	70	70	70	70	70	70	70	70	70
Full breaking time I＞Icw(ms) 全分断时间 I＞Icw(ms)	30	30	30	30	12	30	30	12	30	30	30	30	30
Closing Time (ms)合闸时间(ms)	80	80	80	80	80	80	80	80	80	80	80	80	80
外形尺寸固定式Fixed dimensions H=418mm,D=302mm 3P/4P（mm）	296/386		296/386			404/530			566/656		782/908		
External dimensions draw-out type 外形尺寸抽出式 H=461mm,D=396mm 3P/4P（mm）	324/414		324/414			432/558			594/684		810/936		
Stationary weight固定式重量 3P/4P(kg)	45/54		50/61			66/80			97/117		140/160		
Hand cart weight手车式重量3P/4P(kg)	70/82		78/93			104/125			147/190		210/260		

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

A series AC contact main technical parameters

A系列交流器接触 主要技术参数

parameter 参数											
Rated power of the electric motor 电动机额定功率 AC-3 400V（KW)			4	5.5	7.5	15	18.5	22	30	37	45	55
Model型号			A9	A12	A16	A30	A40	A50	A63	A75	A95	A110
Rated current(Ie) 额定电流(Ie)	400V	AC-3	9	12	17	32	37	50	65	75	96	110
	690V	AC-3	7	9	10	21	25	35	43	46	65	82
Rated operating voltage额定工作电压 (Ue) V			400、690									
Operating voltage操作电压e(V)			AC24、48、110、220、380									

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜
A series AC contact main technical parameters
A系列交流器接触 主要技术参数

Rated power of the electric motor 电动机额定功率AC-3 400V（KW)			75	90	110	140	160	200	250	315	400	475
Model型号			A145	A185	A210	260	A300	AF400	AF460	AF580	AF750	AF1350
Current rating 额定电流(Ie)	400V	AC-3	145	185	210	260	305	400	460	580	750	860
	690V	AC-3	120	170	210	220	280	370	400	550	700	860
Rated operating voltage 额定工作电压 (Ue) V			400、690									
Operating voltage 操作电压(V)			AC24、48、110、220、380					AC24、48、110、220、380;DC20~60、 48~130、100~250 Etc.				

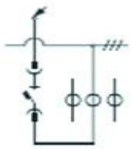
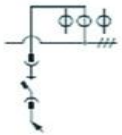
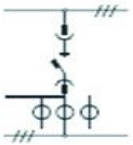
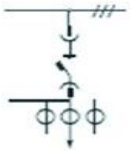
Note: Please contact us for other control voltages.

注:其它控制电压请与我们联系。

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Primary line system diagram 一次线系统图

方案编号	01		02		03		04	
主电路图								
用途	上进线		下进线		母线联络		馈电	
规格序号	A	B	A	B	A	B	A	B
柜宽 (mm)	800	1000	800	1000	800	1000	1000	1000
小室高度(mm)	1800	1800	1800	1800	1800	1800	600	900
最大工作电流(A)	2000	4000	2000	4000	2000	4000	1000	1000
断路器	E2-2000	E4-4000	E2-2000	E4-4000	E2-2000	E4-4000	E2-2000	E3-3200
备注	①≥5000A, Width=1200mm							

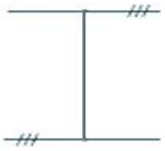
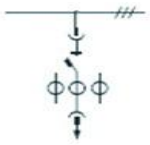
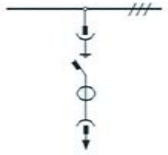
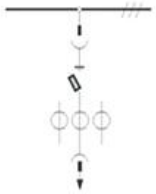
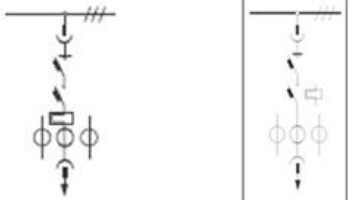
方案号	05	10			11		12		
主电路图									
用途	母线转换	馈线			馈线		馈线		
规格序号		A	B	C	A	B	A	B	C
柜宽 (mm)	400、600、800、1000	600、800							
小室高度(mm)		200 (8E)		400 (16E)	E/4	8E/2	8E/4	8E/2	200 (8E)
最大工作电流(A)		125	250	400	32	63	32	63	250
主元器件		T1、T2	T3	T5	MS116、T1	T1	MS116、T1	T1	T3
备注		当电流为500A或是630A时，采用24E抽屉，高度600毫米。							

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet
ABB MNS2.0型低压抽屉式开关柜
Primary line system diagram 一次线系统图

方案编号	13		15				18		
主电路图									
用途	馈电		电动机（不可逆）				电动机（可逆）		
规格序号	A	B	A	B	C	D	A	B	C
柜宽 (mm)	600、800						600、800		
小室高度(mm)	400 (16E)	200 (8E)	8E/4	8E/2	200 (8E)	400 (16E)	8E/2	200 (8E)	400 (16E)
最大工作电流(A)	400	250	7.5	15	100	200	15	100	200
主元器件	T5 BH	T3、T4 BH	MS、T1 A TA BH	MS、T1 A TA BH	T1、T2 A TA BH	T5 A M102 BH	MS、T1 A TA BH	T1、T2 A TA BH	T5 A M102 BH
备注	当电流为500A或是630A时，采用24E抽屉，高度600毫米								

说明：

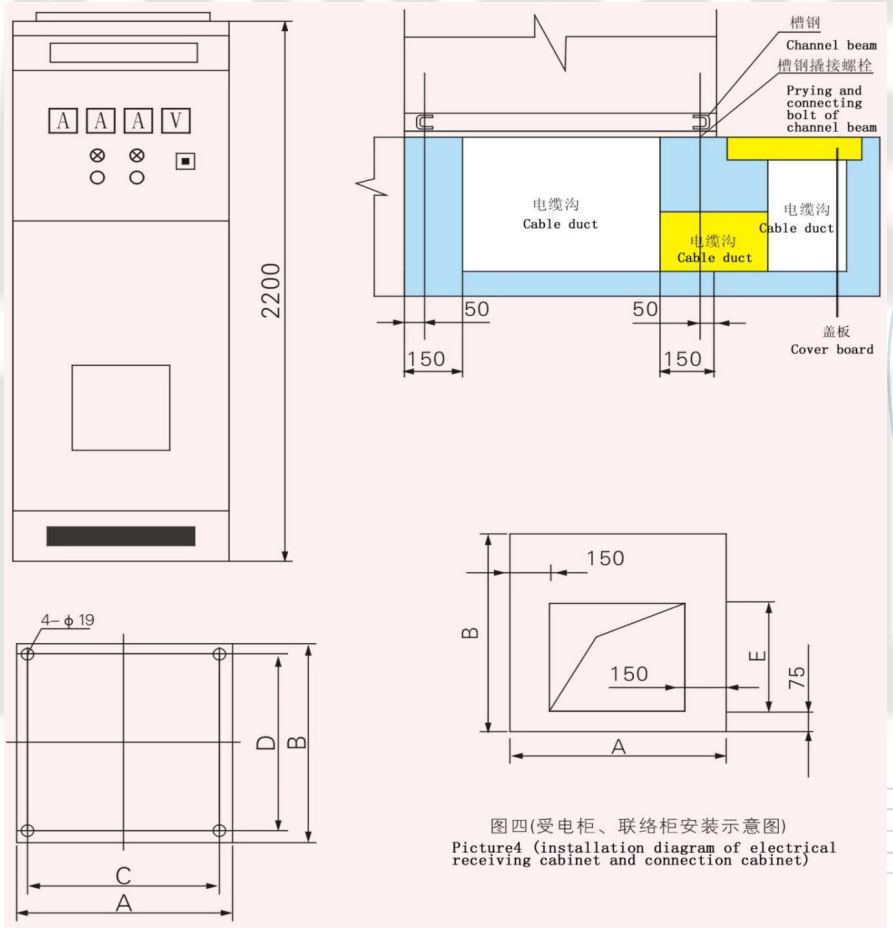
1,单元抽屉最大数为36个8E/4抽屉，或18个8E/2抽屉，或9个8E抽屉，或4个16E抽屉+1个8E抽屉，或3个24E抽屉。也可以是其它任意组合，但抽屉室总高度不能超过1800mm。

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Schematic diagram of the installation of the power receiving cabinet and the contact cabinet
受电柜、联络柜安装示意图

A	B	C	D	E
600	800	500	700	500
800	800	700	700	500
1000	800	900	700	500
600	1000	500	900	500
800	1000	700	900	500
1000	1000	900	900	500



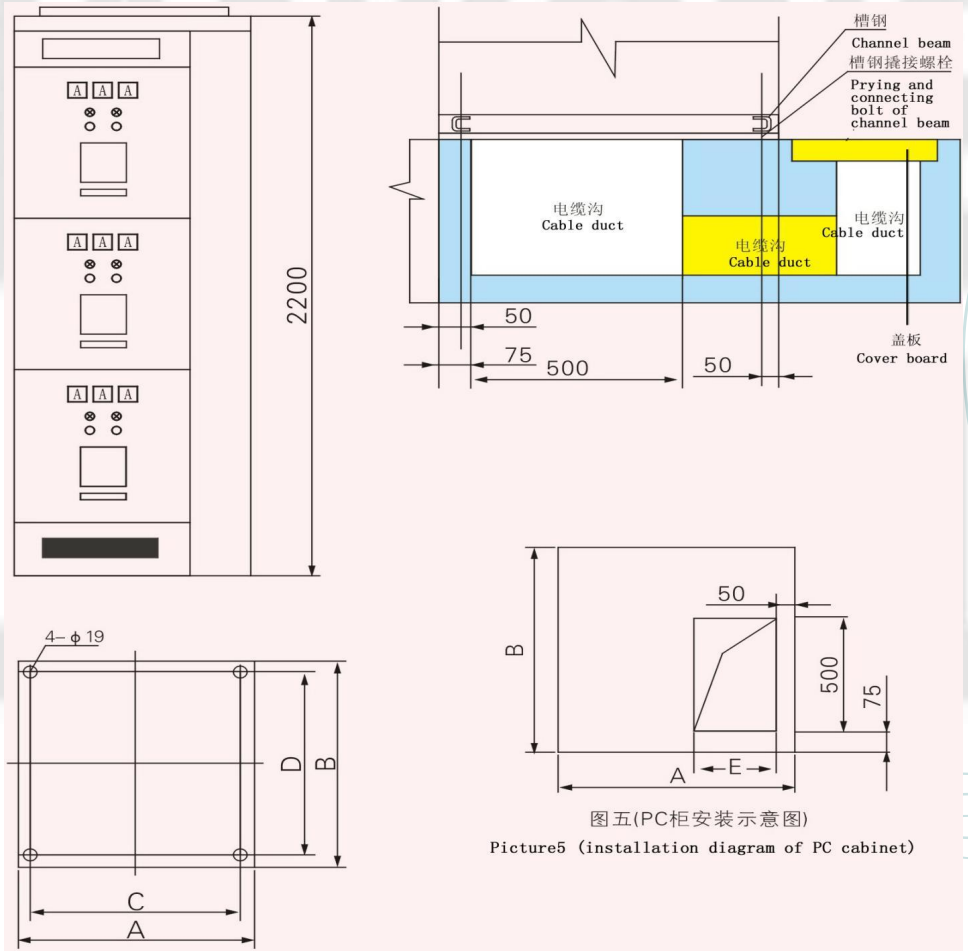
图四(受电柜、联络柜安装示意图)
Picture4 (installation diagram of electrical receiving cabinet and connection cabinet)

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Schematic diagram of PC cabinet installation
PC柜安装示意图

A	B	C	D	E
600	800	500	700	300
800	800	700	700	500
600	1000	500	900	300
800	1000	700	900	500



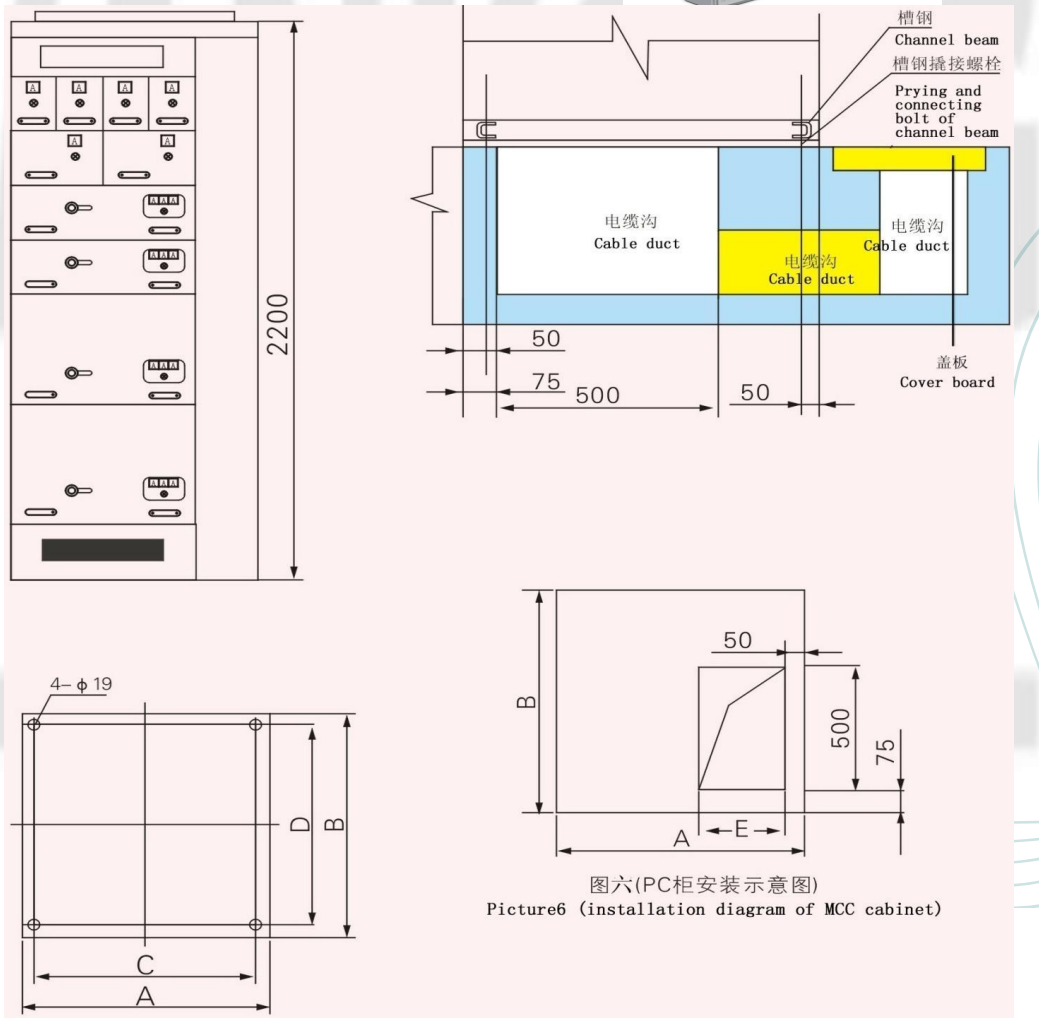
图五(PC柜安装示意图)

Picture5 (installation diagram of PC cabinet)

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Schematic diagram of MCC cabinet installationMCC柜安装示意图				
A	B	C	D	E
600	800	500	700	400
800	800	700	700	400
600	1000	500	900	400
800	1000	700	900	400



图六(PC柜安装示意图)

Picture6 (installation diagram of MCC cabinet)

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

Ordering Instructions

1. Provide the main wiring diagram, serial number, and application; rated voltage; rated current; the layout plan of the distribution room and the arrangement diagram of the switchgear, and mark the module number of each circuit.
2. Mark the specifications of the incoming and outgoing cables.
3. The model, specification and quantity of the main components inside the switchgear.
4. If bus bridges or busways are needed to connect between switchgears or to the incoming line cabinets, the specific required data such as the rated current-carrying capacity of the bus bridges or busways, the span of the bus bridges or busways, and the height from the ground should be provided. For details, please refer to the ordering instructions for bus bridges or busways.
5. When the switchgear is used under special environmental conditions, detailed descriptions should be provided when placing an order.
6. Color: According to user requirements.
7. If the unit circuit current is greater than 400A, it is recommended to change to fixed installation.
8. Other specific requirements.

ABB MNS2.0 type low-voltage drawer-type switchgear cabinet

ABB MNS2.0型低压抽屉式开关柜

订货须知

1.提供主接线方案图、编号，用途；额定电压；额定电流；配电室平面布置图及开关柜的排列配置图，并标明每一回路模数；

2.标明进出线电缆规格；

3.开关柜内主要元件的型号、规格及数量；

4.如开关柜之间或进线柜需要母线桥或母线槽连接，应提供母线桥或母线槽的额定载流量，母线桥或母线槽的跨度，距地面高度等具体要求数据。详见母线桥或母线槽的订货须知；

5.开关柜使用在特殊环境条件时，应在订货时详细说明；

6.颜色：根据用户需求；

7.单元回路电流大于400A以上，建议改为固定安装；

8.其他具体要求。

GGD AC low-voltage distribution cabinet

GGD交流低压配电柜

⊙ **Scope of Application**

The GGD - type AC low - voltage distribution cabinet is applicable to the power distribution systems with AC 50Hz, rated working voltage of 380V and rated working current up to 3150A for power users such as power plants, substations, industrial and mining enterprises, and is used for power conversion, distribution and control of power, lighting and power distribution equipment.

The GGD - type AC low - voltage distribution cabinet is a new - type low - voltage distribution cabinet designed in accordance with the requirements of the superior department in charge of the Ministry of Energy, the majority of power users and design departments, and based on the principles of safety, economy, rationality and reliability. The product has the characteristics of high breaking capacity, good dynamic and thermal stability, flexible electrical schemes, convenient combination, strong serialization and practicability, novel structure and high protection level, and can be used as a replacement product for low - voltage complete switchgear.

The GGD - type AC low - voltage distribution cabinet complies with standards such as IEC439 "Low - voltage Complete Switchgear and Controlgear" and GB7251 "Low - voltage Complete Switchgear".

GGD AC low-voltage distribution cabinet

GGD交流低压配电柜

⊙ **Environmental Conditions for Use**

◆ The ambient air temperature shall not be higher than + 40 °C, not lower than - 5 °C, and the average temperature within 24h shall not be higher than + 35 °C;

◆ It is installed indoors, and the altitude of the installation site shall not exceed 2000m;

◆ The relative humidity of the ambient air shall not exceed 50% when the maximum temperature is + 40 °C, and a relatively large relative humidity shall be allowed at lower temperatures (for example, 90% at + 20 °C). The influence of possible accidental condensation due to temperature changes shall be considered;

◆ The inclination of the equipment with respect to the vertical plane during installation shall not exceed 5°;

◆ The equipment shall be installed in a place without severe vibration and shock, and in a place where electrical components are not subject to corrosion;

◆ Special requirements of users can be negotiated with the manufacturer for solution.

GGD AC low-voltage distribution cabinet

GGD交流低压配电柜

⊙ **适用范围**

GGD型交流低压配电柜适用于发电厂、变电站、厂矿企业等电力用户的交流50Hz，额定工作电压380V，额定工作电流至3150的配电系统，作为动力、照明及配电设备的电能转换、分配与控制之用。

GGD型交流低压配电柜是根据能源部主管上级与广大电力用户及设计部门的要求，本着安全、经济、合理、可靠的原则设计的新型低压配电柜。产品具有分断能力高、动热稳定性好、电气方案灵活、组合方便、系列性、实用性强、结构新颖、防护等级高等特点，可作为低压成套开关设备的更新换代产品使用。

GGD型交流低压配电柜符合IEC439《低压成套开关设备和控制设备》，GB7251《低压成套开关设备》等标准。

⊙ **使用环境条件**

◆ 周围空气温度不高于+40℃，不低于-5℃，24h内的平均温度不得高于+35℃;

◆ 户内安装使用、使用地点的海拔高度不得超过2000m;

◆ 周围空气相对湿度在最高温度为+40℃时不超过50%，应在较低温度时允许有较大的相对温度(例如+20℃时为90%)考虑到由于温度的变化可能会偶然产生疑露的影响;

◆ 设备安装时与垂直面的倾斜度不超过5°:

◆ 设备应安装在无剧烈震动和冲击的地方，以及不足以使电器元件受到腐蚀的场所;

◆ 用户有特殊要求时可与制造厂协商解决。

GGD1 AC low-voltage distribution cabinet
GGD1型交流低压配电柜

Product Overview

The GGD1 type AC low-voltage distribution cabinet (hereinafter referred to as the distribution cabinet) is applicable to power users such as power plants, substations, industrial and mining enterprises, etc. It is used for power conversion, distribution and control of power, lighting and distribution equipment in the distribution system with an AC frequency of 50Hz, a rated working voltage of 380V and a rated working current up to 5000A.

产品概述

GGD1型交流低压配电柜（以下简称配电柜）适用于发电厂、变电所(站)、工矿企业等电力用户作为交流50Hz、额定工作电压380V、额定工作电流至5000A的配电系统中作为动力、照明及配电设备的电能转换、分配及控制之用。

GGD AC low-voltage distribution cabinet
GGD型交流低压配电柜

Product Model and Meaning

GGD1 - □□

G: AC low-voltage distribution cabinet

G: Fixed wiring

D1: For power use

□□: Main circuit scheme number

产品型号及含义

GGD1-□□

G：交流低压配电柜

G：固定式接线

D1：电力用

□□：主电路方案编号

GGD1 AC low-voltage distribution cabinet
GGD1型交流低压配电柜

Normal Operating Conditions

1. The altitude of the installation and use site shall not exceed 2,000 meters.
2. The ambient medium temperature shall not be higher than +40 °C, nor lower than -5 °C, and the average temperature within 24 hours shall not exceed +35 °C.
3. The indoor relative humidity shall not exceed 90% (at a temperature of 25 °C).
4. The site shall be free of conductive dust and gases that are sufficient to corrode metals and damage insulation.
5. The site shall be free of fire and explosion hazards.
6. The site shall be free of severe vibration and jolting, and the vertical inclination shall not exceed 5°.
7. If there are special operating conditions, please declare them to the manufacturer when placing an order.

正常使用条件

1、 安装使用地点海拔高度不超过2000m；
2、 周围介质温度不高于+40℃、不低于-5℃，24h的平均温度不超过+35℃；
3、 室内相对湿度不超过90%（温度为25℃）；
4、 没有导电尘埃与足以腐蚀金属和破坏绝缘的气体的场所；
5、 没有火灾、爆炸危险的场所；
6、 没有剧烈振动和颠簸，且垂直倾斜度不超过5°的场所；
7、 若有特殊使用条件，请在定货时和制造厂声明。

GGD1 AC low-voltage distribution cabinet

GGD1型交流低压配电柜

Technical data of the distribution cabinet

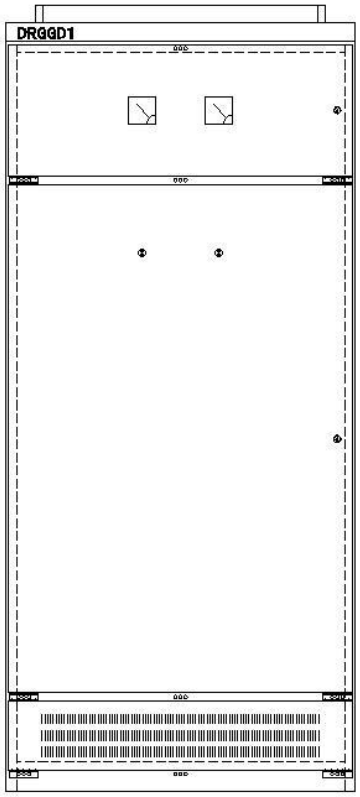
配电柜技术数据

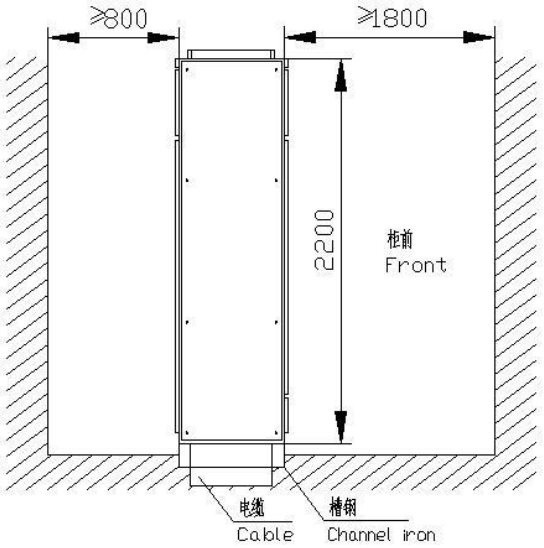
Model 型号	Rated voltage 额定电压 (V)	Current rating 额定电流 (A)	IS rated for short-time withstand currentIs 额定短时耐受电流 (kA)	Rated peak withstand current 额定峰值耐受电流(kA)
GGD1	380	63,080,010,001,600	50,65,80	105,140,176

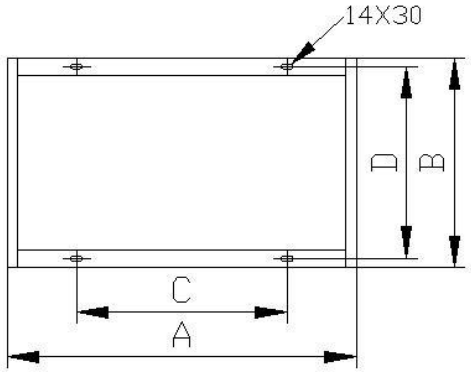
GGD1 AC low-voltage distribution cabinet

GGD1型交流低压配电柜

Dimensions 外形尺寸			
A	B	C	D
600	600	450	556
600	800	450	756
800	600	650	556
800	800	650	756
1000	600	850	556
1000	800	850	756
1200	800	1050	756







Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

The GCS1 type low-voltage withdrawable switchgear (hereinafter referred to as the device) is jointly designed by two departments. It is designed and developed in accordance with the requirements of the industry authorities, numerous power users and design units. It conforms to China's national conditions, has relatively high performance indicators, can adapt to the development needs of the power market and can compete with existing imported products. This device has been widely used by power users at present.

The device is used in the power distribution systems of industries such as power plants, petroleum, chemical engineering, metallurgy, textile, and high-rise buildings. In places with a high degree of automation, such as large power plants and petrochemical systems, where computer interfaces are required, it serves as a complete set of low-voltage power distribution devices for power distribution, centralized motor control and reactive power compensation in power generation and power supply systems with a three-phase alternating current frequency of 50 (60) Hz, a rated working voltage of 380 (400) V or 660 V, and a rated current of 5000 A or less.

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

GCS1型低压抽出式开关柜（以下简称装置）是两部联合设计、根据行业主管部门、广大电力用户及设计单位的要求设计研制出的符合国情、具有较高性能指标、能够适应电力市场发展需要并可与现有引进产品竞争的低压抽出式开关柜。该装置目前已被电力用户广泛使用。装置用于发电厂、石油、化工、冶金、纺织、高层建筑等行业的配电系统。在大型发电厂、石化系统等自动化程度高、要求与计算机接口的场所，作为三相交流频率为50（60）HZ、额定工作电压为380（400）V、660V，额定电流为5000A及以下的发、供电系统中的配电、电动机集中控制、无功功率补偿使用的低压成套配电装置。

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

Operating Conditions

1. The ambient air temperature shall not be higher than +40 ° C nor lower than -5 ° C. The average temperature within 24 hours shall not be higher than +35 ° C. When the temperature exceeds the limit, it is necessary to reduce the capacity according to the actual situation during operation.

2. It is for indoor use, and the altitude of the installation site shall not exceed 2000 m.

3. The relative humidity of the ambient air shall not exceed 50% when the maximum temperature is +40 ° C. A relatively higher humidity is allowed at lower temperatures. For example, it can be 90% at +20 ° C. The impact of accidental condensation due to temperature changes should be taken into account.

4. The inclination angle during the installation of the device shall not exceed 5° , and the whole set of cabinets should be relatively flat (conforming to the GBJ232-82 standard).

5. The device should be installed in places without severe vibration, impact and where there is no undue radiation that could affect the electrical components.

使用条件

1.周围空气温度不高于+40℃，不低于-5℃。24小时内平均温度不得高于+35℃。超过时，需根据实际情况降容运行；

2.户内使用，使用地点的海拔高度不得超过2000m；

3.周围空气相对湿度在最高温度为+40℃时不超过50%，在较低温度时允许有较大的相对湿度，如+20℃时为90%，应考虑到由于温度的变化可能会偶然产生凝露的影响；

4.装置安装时的倾斜角度不超过5°，且整组柜列相对平整（符合GBJ232-82标准）；

5.装置应安装后在无剧烈震动和冲击以及不足以使电器元件受到不应有辐射的场所。

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

Main Switches

For the incoming power lines and feeder switches with a current of 630 A and above, the E and CDW7 series are mainly selected. The AH, DW45 series, AE series, CW1 or RMW1 series can also be used. When necessary, the MT series can also be chosen.

For the feeder switches and switches used for motor control with a current below 630 A, the T and CDM7 series are mainly selected. The NZM series, TM30 series and CM1 series of molded case circuit breakers can also be used.

For AC contactors, the A and CDC7 series, LC1 series and 3TB series of contactors as well as the matching thermal relays and interlocking mechanisms are mainly selected.

All current transformers adopt the LMK series, ALH series and BH series.

The NT00 series or RT16 series with high breaking capacity are selected for fuses.

To improve the dynamic stability ability of the main circuit, the CDGCS series of special CMJ type combined busbar clamps and insulating supports have been designed.

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

主开关

630A及以上的电源进线及馈线开关，主选E和CDW7系列，也可以用AH、DW45系列、AE系列、CW1或RMW1系列，认为有必要时，也可选用MT系列。

630A以下的馈线和电动机控制用开关，主要选用T 和CDM7系列，也可以选用NZM系列、TM30系列、CM1系列塑壳断路器。

交流接触器，主要选用A和CDC7系列、LC1系列、3TB系列的接触器以及与之配套的热继电器、联锁机构

电流互感器全部采用LMK系列、ALH系列、BH系列。

熔断器选用高分断能力的NT00系列或RT16系列。

为提高主电路的动稳定能力，设计了CDGCS系列专用的CMJ型组合式母线夹和绝缘支撑件。

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

Functional Units

a. The modular height of the drawers is 160 mm. It is divided into five size series, namely 1/2 unit, 1 unit, 3/2 units, 2 units, and 3 units. The rated current of the unit circuit is 400 A or less.

b. The change of drawers only occurs in the height dimension, while the width and depth dimensions remain unchanged. Drawers of the same functional units have good interchangeability.

c. Each MCC cabinet can install a maximum of 11 one-unit drawers or 22 half-unit drawers. Drawers of more than one unit adopt multi-functional rear panels.

d. For the incoming and outgoing lines of the drawers, plug-in components with the same specification in the form of plates but with different numbers of plates are adopted according to the magnitude of the current.

e. The transfer between the 1/2 unit drawers and the cable compartment adopts the backboard structure with the ZJ-2 type transfer components.

f. The transfer between the unit drawers and the cable compartment adopts the ZJ-1 type transfer components with the same size in rod or tube structure, which are classified according to the current levels.

g. The drawer units are equipped with mechanical interlocking devices.

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

5. The feeder cabinets and motor control cabinets are provided with dedicated cable compartments. The connection between the functional unit compartments and the cable compartments is achieved through transfer components or transfer copper bars, which not only improves the reliability of cable usage but also greatly facilitates the installation and maintenance of cables by users. There are two width dimensions (240 mm and 440 mm) available for the cable compartments, which are determined according to the number and cross-section of cables as well as users' requirements for convenient installation and maintenance.

6. The number of auxiliary contact pairs of the functional units of the device is 32 pairs for units of one unit and above, and 20 pairs for 1/2 units, which can meet the needs of automated users for computer interfaces.

7. Considering the universality and safety of dry-type transformers as well as the economy of oil-immersed transformers, the device can be conveniently combined with dry-type transformers into a group or can be conveniently connected to the low-voltage busbars of oil-immersed transformers.

8. With drawers as the main body, it has both withdrawable and fixed types, which can be combined in a mixed manner and can be selected at will.

9. The device is designed according to the three-phase five-wire system and the three-phase four-wire system. Design departments and users can conveniently choose the PE + N or PEN mode.

10. The protection level of the cabinet body is IP30 or IP40, which can be selected according to users' needs.

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

功能单元

a．抽屉层高的模数为160mm。分为1/2单元、1单元、3/2单元、2单元、3单元、五个尺寸系列。单元回路额定电流在400A及以下。

b．抽屉改变仅在高度尺寸上变化，其宽度、深度尺寸不变。相同功能单元的抽屉具有良好的互换性。

c．每台MCC柜最多能安装11个一单元的抽屉或22个1/2单元的抽屉。其中一单元以上的抽屉采用多功能后板。

d．抽屉进出线根据电流大小采用不同片数的同一规格片式结构的插件。

e．1/2单元抽屉与电缆室的转接采用背板式结构ZJ-2型转接件。

f．单元抽屉与电缆室的转接按电流分档采用相同尺寸棒式或管式结构ZJ-1型转接件。

g．抽屉单元设有机械联锁装置。

5.馈线柜和电动机控制柜设有专用的电缆隔室，功能单元室与电缆室内的连接通过转接件或转接铜排实现，即提高了电缆的使用可靠性，又极大地方便了用户对电缆的安装与维修。

电缆隔室有二个宽度尺寸（240mm和440mm）可供选用，视电缆数量、截面和用户对安装维修方便的要求而定。

6.装置的功能单元辅助接点对数一单元及以上的为32对，1/2单元的为20对，能满足自动化用户与计算机接口的需要。

7.考虑到干式变压器使用的普遍性安全性和油浸变压器的经济性，装置既可以方便地与干式变压器组成一个组列，也可以与油浸变压器低压母线方便连接。

8.以抽屉为主体，同时具有抽出式和固定式，可以混合组合，任意选用。

9.装置按三相五线制和三相四线制设计，设计部门和用户可以方便地选用PE+N或PEN方式。

10.柜体的防护等级为IP30、IP40，可以按用户需要选用。

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

Device Features

1. The heat capacity of the transfer components is increased, and the additional temperature rise brought to the connectors, cable heads and partition boards due to the temperature rise of the transfer components is significantly reduced.

2. The separation between functional units and between compartments is clear and reliable. The failure of one unit will not affect the operation of other units, confining the failure to the minimum scope.

3. The horizontal arrangement of the busbars enables the device to have good dynamic and thermal stability and can withstand the impact of short-circuit currents of 80/176 kA.

4. The number of circuits in a single MCC cabinet can be as many as 32 circuits, fully considering the needs of automated electric door (motor) groups in industries such as power generation with large single-unit capacity and petrochemical systems.

5. The connection between the device and external cables is completed in the cable compartment, and the cables can enter and exit from above or below. The zero-sequence current transformer is placed in the cable compartment, making installation and maintenance convenient.

6. In the same power distribution system, the short-circuit strength and requirements can be limited and matched through current-limiting reactors.

7. The drawer units have a sufficient number of secondary connectors (32 pairs for units of 1 unit and above, and 20 pairs for 1/2 units), which can meet the requirements of the number of contacts for computer interfaces and automatic control loops.

Type GCS1 Low-voltage Draw-out Switchgear
GCS1型低压抽出式开关柜

装置特点

1.提高转接件的热容量，较大幅度的降低由于转接件的温升给接插件、电缆头、间隔板带来的附加温升。

2.功能单元之间、隔室之间的分隔清晰、可靠，不因某一单元的故障而影响其他单元工作，使故障局限在最小范围。

3.母线平置式排列使装置的动、热稳定性好，能承受80/176kA短路电流的冲击。

4.MCC柜单柜的回路数量多到32回路，充分考虑大单机容量发电，石化系统等行业自动化电动门（机）群的需要。

5.装置与外部电缆的连接在电缆隔室中完成，电缆可以上下进出。零序电流互感器置电缆隔室内，使安装维修方便。

6.同一电源配电系统，可以通过限流电抗器匹配限制短路强度和要求。

7.抽屉单元有足够数量的二次插接件（1单元及以上为32对，1/2单元为20对。），可满足计算机接口和自控回路对接点数量的要求。

Type GCS1 Low-voltage Draw-out Switchgear

GCS1型低压抽出式开关柜

Main technical parameters　主要技术参数

The rated voltage of the main circuit　主电路额定电压（V）		AC380（400）、660
Auxiliary circuit voltage rating　辅助电路额定电压（V）		AC220、380，DC110、220
Rated frequency额定频率(Hz)		50（60）
Rated insulation voltage额定绝缘电压（V）		660（1000）
Current rating额定电流（A）	Horizontal busbar水平母线	≤5000
	MCC垂直母线Vertical busbar	1000
The bus bar is rated for short-time withstand current 母线额定短时耐受电流（KA/1S）		50，80
The busbar is rated for peak withstand current　母线额定峰值耐受电流（KA/0.1S）		105，176
Power frequency test voltage 工频试验电压(V/1min)	Main circuit主电路	2500
	Auxiliary circuits辅助电路	1760
generatrix母线	Three-phase four-wire system三相四线制	A、B、C、PEN
	Three-phase five-wire system三相五线制	A、B、C、PE、N
Ingress protection防护等级		IP30、IP40

Type GCS1 Low-voltage Draw-out Switchgear

GCS1型低压抽出式开关柜

Device horizontal busbar selection table　装置水平母排选用表

Current rating　额定电流（A）	Copper bar specification　铜排规范（TMY-T2）
630~1250	2（50X5）
1600	2（60X6）
2000	2（60X10）
2500	2（80X10）
3150	2X2（60X6）
4000	2X2（60X10）

Vertical Busbars

The vertical busbars used for the drawer cabinets are "L" -shaped tinned busbars.

Specifications of L-shaped busbars (mm): (height × thickness) + (base × thickness)

(50 × 5) + (30 × 5)

Rated current: 1000 A.

c. Neutral and Grounding Busbars

垂直母线

用于抽屉柜的垂直母线用“L”形镀锡母线。

L型母线规格（mm）：（高×厚）+（底×厚）

（50×5）+（30×5）

额定电流1000A。

c.中性接地母线

Type GCS1 Low-voltage Draw-out Switchgear

GCS1型低压抽出式开关柜

Structural Features

1. The main frame of the device adopts 8MF section steel. The frame has two structural forms, namely the assembled form and the partially welded form. There are mounting hole modules with a modulus E = 20 mm on the main frame.

2. The functional compartments of the device are strictly separated. The compartments are mainly divided into functional unit compartments, busbar compartments and cable compartments, and the functions of each unit are relatively independent.

3. Dimensions of the cabinet body of the device.

结构特点

1.装置的主构架采用8MF型钢，构架采用拼装和部分焊接两种结构形式。主构架上均有安装孔模数E=20mm。

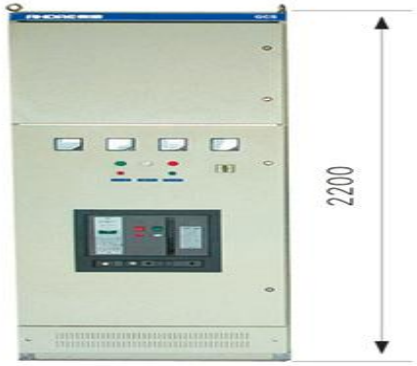
2.装置各功能室严格分开，其隔室主要分为功能单元室、母线室、电缆室，各单元的功能相对独立。

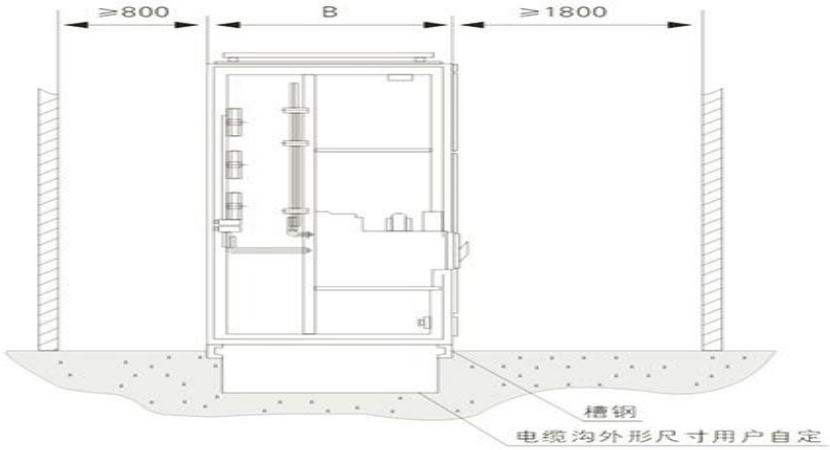
3.装置柜体的尺寸

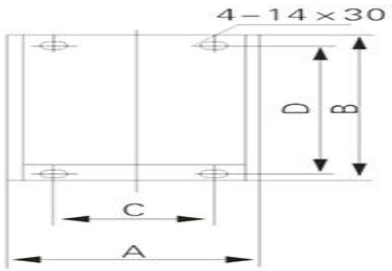
H高	2200							
W宽	600		800			1000		
d深	600	800	600	800	1000	600	800	1000

Type GCS1 Low-voltage Draw-out Switchgear

GCS1型低压抽出式开关柜　安装规格







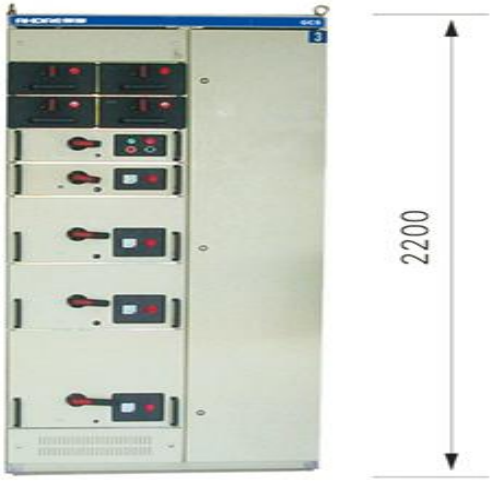
槽钢
电缆沟外形尺寸用户自定
图1：受电、联络柜安装示意图

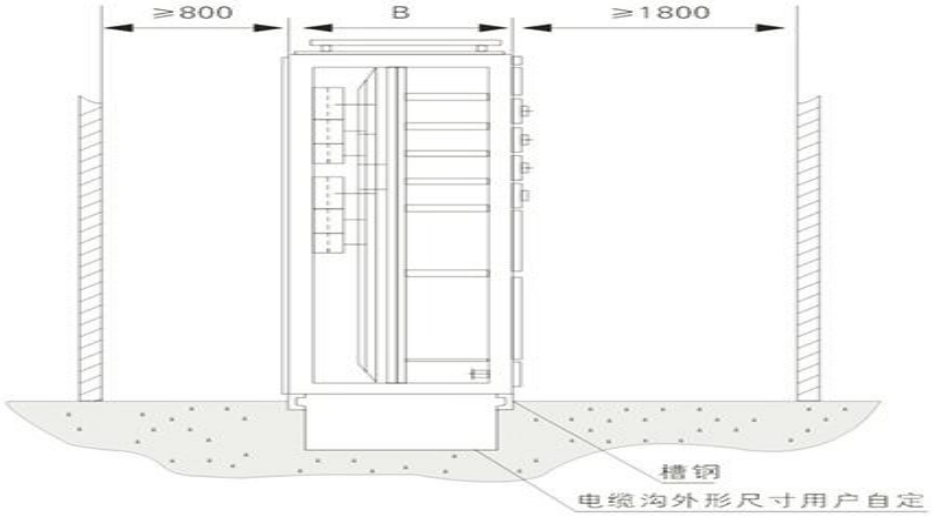
表7

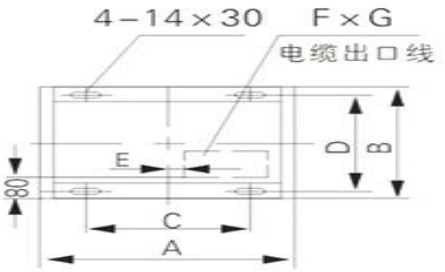
A	B	C	D	备注
1000	1000	850	956	联络
800	1000	650	956	进线
800	800	650	756	进线
600	800	450	756	进线

Type GCS1 Low-voltage Draw-out Switchgear

GCS1型低压抽出式开关柜







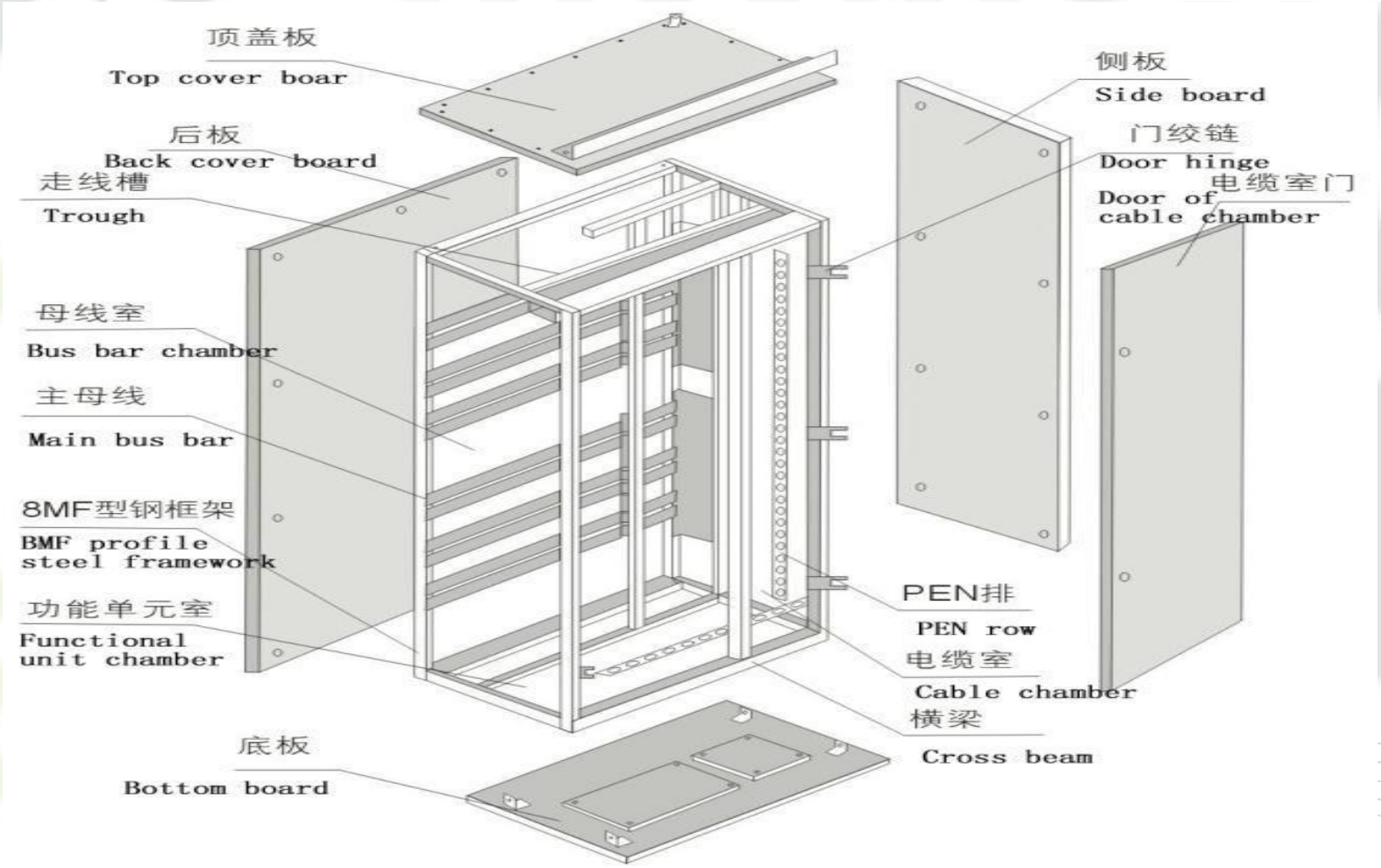
槽钢
电缆沟外形尺寸用户自定
图2 MCC柜安装示意图

表8

A	B	C	D	E	F×G
1000	600	850	556	60	400×350
800	600	650	556	160	200×350

Type GCS1 Low-voltage Draw-out Switchgear System composition

GCS1型低压抽出式开关柜 系统构成



Type GCS1 Low-voltage Draw-out Switchgear

GCS1型低压抽出式开关柜

Device

The busbar short-circuit strength of the entire series of the incoming power cabinets, power feeder cabinets (PC), and motor control cabinets (MCC) of the device has reached the level of 80 kA (effective value) / 176 kA (peak value). It has filled the gap in China's high short-circuit strength withdrawable switchgear and is at the leading level in China.

The PC cabinet is composed of three-unit feeders, and the maximum current of each unit feeder is 1600 A. The busbar compartments, functional unit compartments, and cable compartments of the PC cabinets and MCC cabinets are separated from each other. An MCC cabinet can be combined with a maximum of 22 half-functional units.

It can also be composed of a mixture of half or more functional units according to the 160 mm modulus. Mixed assembly of withdrawable units and fixed partitioned units can be realized as required.

装置

装置的受电柜、动力馈电柜（PC）和电动机控制柜（MCC）全系列的母线短路强度均达到80kA（有效值）/176kA（峰值）的水平。填补了我国高短路强度抽出式开关柜的空白，具有国内领先水平。

PC柜由三个单元馈线组成，每单元馈线最大电流1600A。PC柜、MCC柜的母线室，功能单元室和电缆室相互分隔。MCC柜最多可由22个1/2功能单元组合。也可以按照160mm模数由1/2或以上功能单元混合组成。可按需要实现抽出式单元和固定分隔式单元混合组装。

XL-21 power Switchgear
XL-21动力柜

Product Overview

The XL-21 power distribution cabinet is applicable to power plants, industrial and mining enterprises. It is used in three-phase three-wire, three-phase four-wire, three-phase four-wire and three-phase five-wire systems with an alternating voltage of 500V and below for power and lighting distribution.

The XL-21 power distribution cabinet is an indoor device, which is installed against the wall and is maintained in front of the panel.

Ordering Instructions

When placing an order, the user should provide the following information:

1. The complete model number of the product (including the main circuit scheme number and the auxiliary circuit scheme number);
2. The main circuit system diagram and the plane layout diagram of the cabinet body;
3. The electrical schematic diagram of the auxiliary circuit;
4. The list of components inside the cabinet (the specification of the main busbar);
5. The color of the cabinet body (if there is no requirement, it will be supplied in light camel gray);
6. The size of the cabinet body (if there is no requirement, it will be determined by our company according to the actual situation). Other special requirements that do not conform to the normal operating conditions of the product.

XL-21 power Switchgear
XL-21动力柜

产品概述

XL-21型动力配电柜适用于发电厂及工矿企业，交流电压500V及以下的三相三线、三相四线、三相四线、三相五线制系统，作动力照明配电之用。

XL-21型动力配电柜系户内装置，靠墙安装，屏前检修。

订货须知

用户订货时应提供以下资料：

1、 产品的全部型号（包括主电路方案号和辅助电路方案号）；

2、 主电路系统图，柜体的平面排列图；

3、 辅助电路电气原理图；

4、 柜内元器件清单（主母线规格）；

5、 柜体颜色(如无要求，则按浅驼灰色供货)；

6、 柜体尺寸（如无要求，则由我公司根据情况自定）。其它与产品正常使用条件不符的特殊要求。

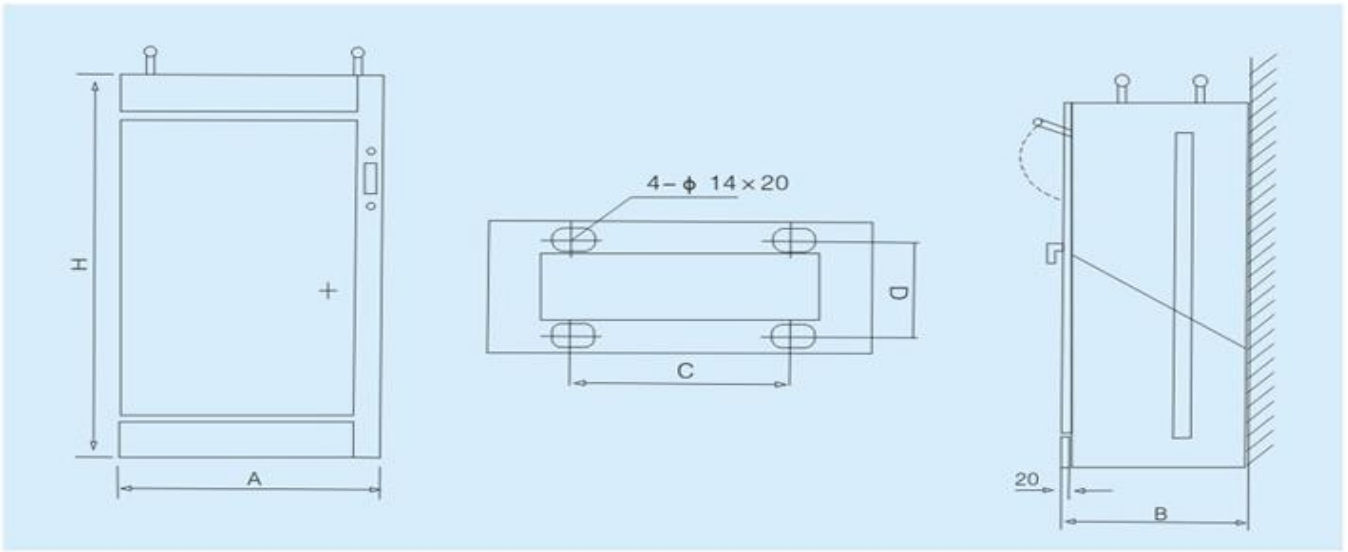
XL-21 power Switchgear
XL-21动力柜
Main technical parameters 主要技术参数

serial number 序号	name名称	unit单位	data数据
1	The rated voltage of the main circuit 主电路额定电压	V	AC380
2	Auxiliary circuit voltage rating 辅路电路额定电压	V	AC220,AC380
3	Rated frequency 额定频率	Hz	50
4	Rated insulation voltage 额定绝缘电压	V	660
5	Current rating 额定电流	A	≤800A

XL-21 power Switchgear

XL-21动力柜

柜体尺寸Cabinet size



A	B	C	D	H
700	470	500	400	1700
700	370	500	300	1700
600	370	400	300	1600
800	370	600	300	1700
800	470	600	400	1800

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

Scope of Application

The GCK low-voltage withdrawable switchgear consists of two parts: the power distribution center (PC) cabinets and the motor control center (MCC). It is applicable to power users such as power plants, substations, industrial and mining enterprises as power conversion, distribution and control equipment for power distribution, motor control and lighting in the power distribution systems with an alternating current of 50 Hz, a maximum working voltage up to 660 V and a maximum working current up to 3150 A.

⊙ Features

This series of products has the advantages of high breaking capacity, good dynamic and thermal stability, advanced and reasonable structure, practical electrical schemes, strong series and universality, arbitrary combination of various scheme units, more circuits that can be accommodated in one cabinet body, saving floor space, beautiful appearance, high protection level, safety and reliability, and convenient maintenance.

This product complies with the IEC439 and NEMA ICS2-322 standards, as well as the national standard GB7251-87 "Low-voltage Complete Switchgear" and the professional standard ZBK36001-89 "Low-voltage Withdrawable Complete Switchgear".

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

⊙ **Normal Operating Conditions**

◆ The altitude shall not exceed 2000 m.

◆ The ambient air temperature shall not be higher than +40 °C, and the average temperature within 24 hours shall not be higher than +35 °C. The ambient air temperature shall not be lower than -50 °C.

◆ Atmospheric conditions: The air is clean. The relative humidity shall not exceed 50% when the temperature is +40 °C. A relatively higher humidity is allowed at lower temperatures. For example, it can be 90% when the temperature is +20 °C.

◆ It should be installed in places without fire, explosion hazards, serious pollution, chemical corrosion or severe vibration.

◆ The inclination with respect to the vertical plane shall not exceed 5°. This product is suitable for transportation and storage within the temperature range of -25 °C to +55 °C, and shall not exceed +70 °C within a short period of time (not exceeding 24 hours). If the above operating conditions cannot be met, the user should put forward the requirements to the manufacturer when placing an order and negotiate for a solution.

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

适用范围

GCK低压抽出式开关柜由动力配电中心(PC)柜和电动机控制中心(MCC)二部分组成，适用于发电厂，变电站，工矿企业等电力用户作为交流50Hz，最大工作电压至660V，最大工作电流至3150A的配电系统中，作为动力配电，电动机控制及照明等配电设备的电能转换分配控制之用。

特点

本系列产品具有分断能力高，动热稳定性好，结构先进、合理，电气方案切合实际，系列性，通用性强，各种方案单元任意组合，一台柜体所容纳的回路较多，节省占地面积，外形美观，防护等级高，安全可靠，维护方便等优点。

本产品符合IEC439 NEMAICS2-322标准，也符合GB7251-87《低压成套开关设备》国家标准和ZBK36001-89《低压抽出式成套开关设备》专业标准。

正常使用条件

◆ 海拔不超过2000m;

◆ 周围空气温度不高于+40℃，并且24h内平均温度不高于+35℃，周围空气温度不低于-50℃;

◆ 大气条件：空气清洁，相对湿度在温度为+40℃时不超过50%，在温度较低时允许有较高的相对湿度，例如：+20℃时为90%;

◆ 没有火灾.燥炸危险，严重污秽，化学腐蚀及剧烈震动的场所;

◆ 与垂直面倾斜不超过5°;本产品适合以下温度运输储存：-25℃~+55℃，在短时间内(不超过24h)不超过+70℃;如上述使用条件不能满足时，应由用户在订货时向制造厂方提出，协商解决。

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

Structural Features

The basic frame of this series of products adopts an assembled structure. All structural components of the frame are connected to each other by screws to form a basic framework. Then, parts such as doors, baffles, partitions, drawers, mounting brackets, busbars and electrical components are added as required to assemble a complete switchgear cabinet. This cabinet has the following features:

1. The frame is made of C-shaped steel. It uses three-dimensional angle plates for positioning. The bolted connection without a welded structure avoids welding deformation and stress, improving the installation accuracy.

2. The mounting holes of the frame and its components vary according to the modulus E = 20 mm.

3. The internal structural parts are galvanized. After pickling and phosphating treatment on the exterior, electrostatic epoxy powder spraying is adopted.

4. In the incoming line cabinet of the power center (PC), the top is the horizontal busbar area, and the lower part of the horizontal busbar area is the circuit breaker chamber. The circuit breaker can be configured with domestic DW15C, ME and other series. It can also be configured with various circuit breakers produced by foreign electrical companies according to user needs, such as the F series circuit breakers produced by ABB Company and intelligent circuit breakers. Under normal circumstances, when the PC unit has a main circuit with a bus tie (including the bus tie) and the rated current is between 630 A and 1600 A, it occupies a cabinet with an external dimension of 800×1000×2200 (width × depth × height). The main circuit without a bus tie occupies a cabinet with an external dimension of 800×800×2000 (width, depth, height). When the rated current is between 1600 A and 3150 A, it occupies a cabinet with an external dimension of 1000×1000×2200 (width × depth × height). The main circuit without a bus tie occupies a cabinet with an external dimension of 1000×800×2200 (width × depth × height). The structure of the power center (PC) feeder cabinet is similar to that of the incoming line cabinet. When the feeder current is between 630 A and 1600 A, two circuits can be installed in a cabinet with an external dimension of 1000×1000×2200 (width × depth × height), which are installed in an up-and-down arrangement.

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

5. There are two types of motor control center (MCC) switchgear cabinets: installed against the wall and not installed against the wall. The top of both is the horizontal busbar area, and the area below the horizontal busbar area is the drawer functional unit area. The width of this area is 600 mm, and the height of the installed drawer functional unit area is 1840 mm. When the cabinet is installed against the wall, the left part of the cabinet is the functional unit area, and there is a 200 mm wide cable outlet area on the right. The external dimension of the cabinet is 800/500/2200 (width/depth/height). When the cabinet is installed away from the wall, the width of the cabinet is 600 mm, the cable outlet area is at the rear of the cabinet, and the external dimension of the cabinet is 600×800(1000)×2200 (width × depth × height). There are two types of cabinet depths, 800 and 1000. We recommend that users choose the 1000-deep cabinet to be consistent with the depth of the PC cabinet. When the drawer is pulled out of the cabinet, the live parts inside the cabinet are not exposed, which is safe and reliable.

6. The drawer functional unit and the door are mechanically interlocked by the operating mechanism of the main switch. When the main switch is in the closed position, the door cannot be opened, and the operating mechanism can be locked in the closed or open position by an additional padlock. The functional unit compartments are separated by metal plates. The drawers have good interchangeability and have working positions, test positions and separated positions. When the drawer is pushed to a certain position, it is automatically positioned. At this time, the pull plate on the left side of the drawer can be pulled to release the positioning and enter the next position. When the drawer is pulled out of the cabinet, it also has an anti-falling function.

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

7. The cabinets with fixed schemes such as capacitor compensation and metering have the same appearance and the same horizontal busbar position as the drawer-type cabinets, thus ensuring that the drawer-type and fixed cabinets can be used side by side.

8. The busbar system of the cabinet adopts the three-phase five-wire system. When the rated current of the horizontal busbar is 1250 A or less, a single busbar is used. When the rated current of the horizontal busbar is above 1250 A, a double busbar is used. The horizontal busbars between cabinets are overlapped by connecting blocks. The vertical busbars are enclosed by polycarbonate engineering plastic shells, and the internal partitions are used to limit the spread of arcs.

The neutral busbar is set at the front of the top of the cabinet, and the protective busbar (PE) is set at the bottom of the cabinet and is connected to the partitions and doors of the cabinet, thus ensuring the continuity of grounding.

9. Natural ventilation windows are provided at the bottom and top of the switchgear cabinet without reducing the protection level of the enclosure.

10. The protection level of the cabinet enclosure is IP40.

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

结构特征

本系列产品的基本柜架为组合装配式结构.柜架的全部结构件通过螺钉紧固互相连接成基本框架.再按需要加上门、档板、隔板、抽屉、安装支架以及母线和电器组件等零件，组装成一台完整的开关柜，本柜有下列特点：

1.框架采用形钢材，利用三维角板定位，螺栓连接无焊接结构从而避免了焊接变形和应力，提高了安装精度。

2.框架及零部件安装孔按模数E=20mm变化。

3.内部结构件采用镀锌处理。外部经酸洗和磷化处理后，采用静电环氧粉末喷涂。

4.在动力中心(PC)进线柜内，顶部为水平母线区域，水平母线区域下部为断路器室，断路器可配置国产的DW15C，ME等系列，也可根据用户需要配置国外电气公司生产的各种断路器，如：ABB公司生产的F系列断路器，以及智能化断路器。在一般情况下，PC单元带有有翻排的主电路(包括母联)，额定电流在630A-1600A时，占据一个外形尺寸为800×1000×2200(宽x深x高)的柜体。没有翻排的主电路占据一个外形尺寸为800×800×2000(宽、深、高)的柜体。额定电流在1600A-3150A时，占据一个外形尺寸为1000×1000×2200(宽x深x高)的柜体。没有翻排的主的柜体。额定电流在1600A-3150A时，占据一个外形尺寸为1000×1000×220(宽×深×高)的柜体。没有翻排的主电路占据一个外形尺寸为1000×800×2200(宽x深x高)的柜体。动力中心(PC)馈电柜结构与进线柜相似，馈电电流在630A-1600A时，一个1000×1000×2200(宽×深x高)的柜体可装二个回路，为上下布置安装。

GCK Low-voltage Withdrawable Switchgear

GCK低压抽出式开关柜

5.电动机控制中心(MCC)开关柜有靠墙安装和不靠墙安装二种，其顶部都为水平母线区域，水平母线区域下面为抽屉功能单元区域，该区域的宽度为600mm，安装抽屉功能单元区域的高为1840mm，当柜体为靠墙安装时柜的左部为功能单元区域，右部有一个200mm宽的电缆出线区域，柜体外形尺寸为800/500/2200(宽/深/高)，当柜体为离墙安装时，柜体宽度为600mm，电缆出线区在柜体的后部，柜体的外形尺寸为600×800(1000)×2200(宽x深x高)。柜体深度有800和1000二种，我们建议用户选用1000深的柜体，以与PC柜深度统一当抽屉抽出柜外时，柜内带电部分不外露，安全可靠。

6.抽屉功能单元与门由主开关的操作机构进行机械联锁，主开关在合闸位置时门打不开，并且操作机构可采用外加挂锁锁定在合闸或分闸位置。功能单元隔室之间用金属板分隔，抽屉具有良好的互换性，并具有工作位置，试验位置和分离位置。当抽屉推到某个位置时，抽屉自动定位，此时可拉动抽屉左边的拉板抽屉可解除定位，进入下一个位置，抽屉抽出柜外时还具备防脱落功能。

7.在电容补偿、计量等固定式方案的柜体与抽屉式柜体具有同样的外观造型，同样的水平母线位置。从而保证了抽屉式与固定式柜体能够并排使用。

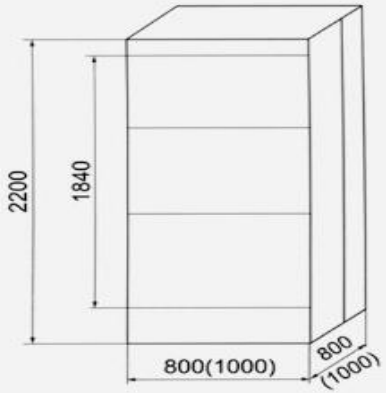
8.母线系统柜体的母线采用三相五线制，水平母线额定电流在1250A及以下时采用单母线，水平母线额定电流在1250A以上时采用双母线，柜与柜之间的水平母线采用连接块搭接，垂直母线采用聚碳酸脂工程塑料外壳封闭，内部用隔板限制电弧扩散，中性母线设置在柜顶的前部，保护母线(PE)设置在柜底部，并与柜体的隔板，门相连，从而保证了接地连续性。

9.在不降低外壳防护等级的情况下，开关柜底部和顶部设有自然通风窗口。

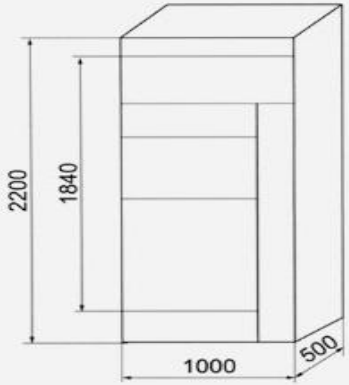
10.柜体外壳防护等级为IP40。

GCK Low-voltage Withdrawable Switchgear Dimensions

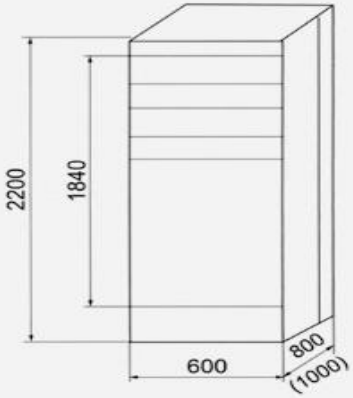
GCK低压抽出式开关柜 外形尺寸



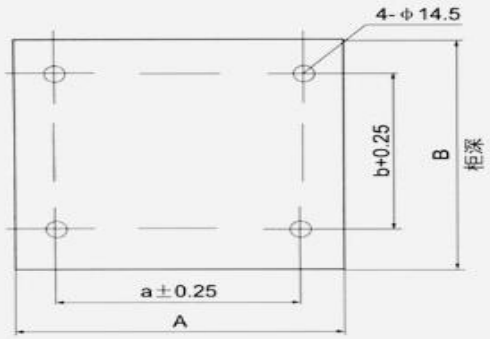
PC 柜外形尺寸



靠墙安装的 MCC 柜外形尺寸



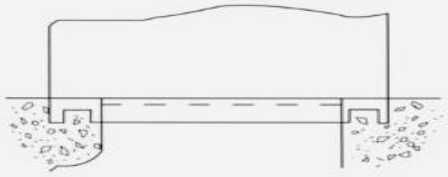
离墙安装的 MCC 柜外形尺寸



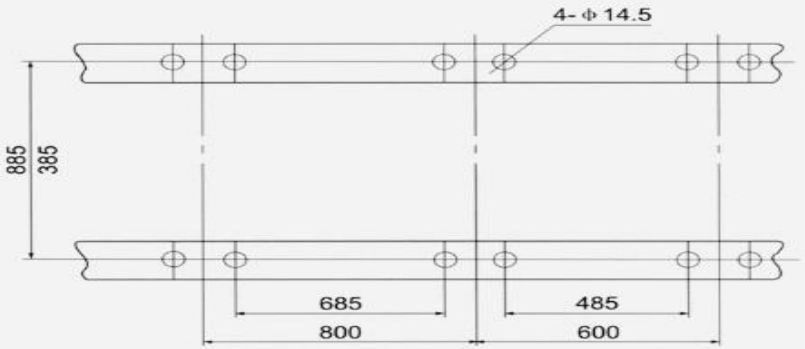
安装尺寸及安装孔

柜宽	柜深	安装孔距 (a)	安装孔距 (b)
800	500	685	385
600	800	485	685
600	1000	485	885
800	800	685	685
800	1000	685	885
1000	800	885	685
1000	1000	885	885

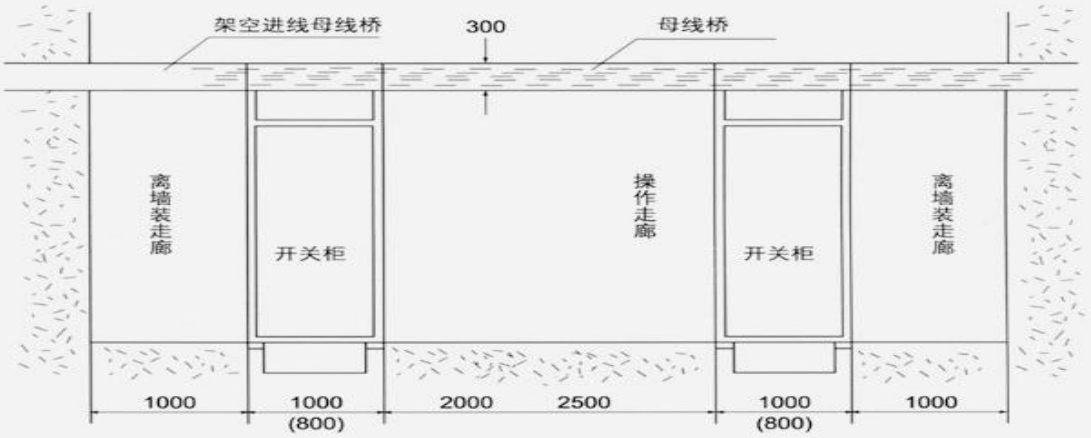
GCK Low-voltage Withdrawable Switchgear
Installation dimensions
GCK低压抽出式开关柜 安装尺寸



产品户内布置及母线桥架要求



注：本公司可根据用户要求提供各种形式的母线桥架。



JXF/JFF Series Lighting Distribution Boxes

JXF/JFF系列照明配电箱

Overview

The JXF/JFF series lighting distribution boxes are available in two types, surface-mounted and outdoor ones, with a total of 24 specifications. All products are made by bending and welding electrolytic steel plates. The surface is treated with electrostatic epoxy resin spraying, which makes them both aesthetically pleasing and durable. A sealing rubber strip is installed on the "V"-shaped box body to prevent dust and rain from infiltrating. There are movable knockout holes on both the upper and lower sides of the box body, and they have been sealed with covers. An installation base plate is equipped inside the box, on which electrical equipment can be installed. The door can be opened wider than 90 degrees and rotates flexibly.

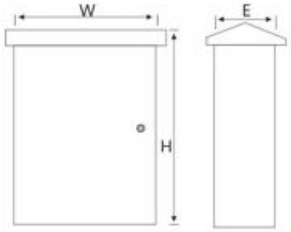
概述

JXF/JFF系列照明配电箱，分明装和户外两种，共24种规格，全部产品采用电解钢板折弯焊接而成，表面经过环氧树脂静电喷涂处理，美观耐用。在箱体“V”型箱上装有密封橡胶条，防止灰尘，雨水渗入；箱体上下两侧备有活动的敲落孔。并已加盖密封；箱内配有安装底板。可安装电器设备，门开启大于90度，转动灵活

JXF/JFF Series Lighting Distribution Boxes

JXF/JFF系列照明配电箱

◎外形尺寸图



规格	箱体尺寸 宽X高X深（mm）	装箱数
JFF25/30/14	250X300X140	10
JFF25/30/18	250X300X180	10
JFF30/40/14	300X400X140	8
JFF30/40/20	300X400X200	6
JFF40/50/14	400X500X140	6
JFF40/50/20	400X500X200	4
JFF40/60/20	400X600X200	4
JFF50/60/20	500X600X200	3
JFF50/60/25	500X600X250	3
JFF50/70/20	500X700X200	3
JFF50/70/25	500X700X250	2
JFF60/80/20	600X800X200	2
JFF60/80/25	600X800X250	2
JFF80/100/20	800X1000X200	1
JFF80/100/25	800X100X250	1
JFF80/100/30	800X1000X30	1

tainless steel distribution cabinet

不锈钢配电箱

The stainless steel outdoor integrated distribution cabinet series is suitable for power transmission and distribution systems with AC 50Hz and rated voltage below 0.4kV. This series of products integrates automatic compensation and power distribution, and integrates various functions such as leakage protection, electric energy metering, overcurrent, overvoltage, and open-phase protection. It has the advantages of small size, easy installation, low cost, anti-theft, strong adaptability, anti-aging, accurate operation, and no compensation malfunction. It is an ideal and good product for power grid transformation.

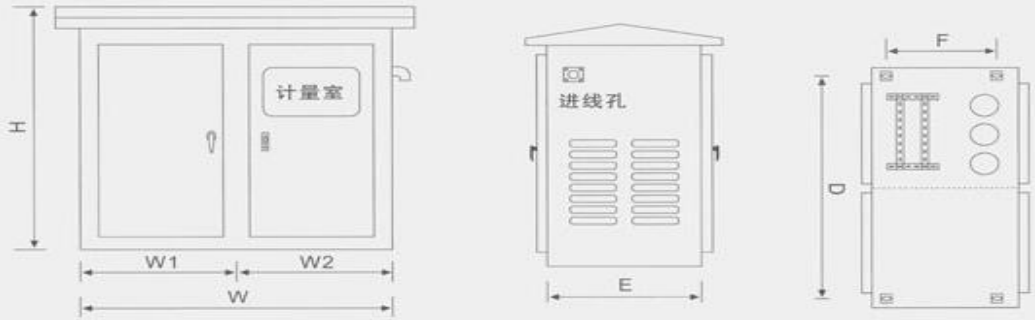
不锈钢户外综合配电柜系列适用于交流50Hz、额定电压0.4kV以下的输配电系统。该系列产品集自动补偿和配电于一体，集漏电保护、电能计量、过流、过压、开相保护等多种功能于一体。具有体积小、安装方便、成本低、防窃电、适应性强、抗老化、运行准确、无补偿误动作等优点。是电网改造的理想不错产品。

Stainless steel distribution cabinet

不锈钢配电箱

变压器容量	宽 W(mm)			高 H(mm)	深 E(mm)	固定安装尺寸	
	W	W1	W2			D	F
50KVA 以下	650	–	–	700	350	250	460
50~80KVA	900	450	450	800	500	400	860
100~125KVA	1000	550	550	800	500	400	960
160~200KVA	1250	800	450	900	600	500	1210
250~315KVA	1350	900	450	900	700	600	1310
500KVA	1550	1100	450	1200	700	600	1510

注：以上尺寸仅供参考，可按用户提供图纸制造。



变压器容量	宽 W(mm)	高 H(mm)			深 E(mm)	固定安装尺寸	
		H	H1	H2		D	F
50KVA 以下	700	1000	530	470	400	300	660
80~125KVA	700	1250	780	470	450	350	660
160~200KVA	800	1400	930	470	500	400	760
250~315KVA	800	1550	1080	470	550	450	760

注：以上尺寸仅供参考，可按用户提供图纸制造。

WANKONG ELECTRICAL

YB-12
YDB-12
YBD-12
YBW-12
ZBW-12

目录

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Substation

变电站

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

Functions and Features

1. It combines high-voltage switchgear, transformers, and low-voltage switchgear into one, with strong integrity as a complete set.

2. It has comprehensive high and low-voltage protection, ensuring safe and reliable operation and simple maintenance.

3. It occupies less land, requires less investment, has a short production cycle, and is convenient to move.

4. The grounding scheme is flexible and diverse.

5. Unique structure: The unique honeycomb-structured double-layer (composite panel) enclosure is sturdy, provides heat insulation, heat dissipation, and ventilation, is aesthetically pleasing, and has a high protection level. The enclosure materials can be selected from stainless steel alloys, aluminum alloys, cold-rolled steel plates, color steel plates, ceramic tiles, wooden strips, new environmentally friendly materials, and surface watercolor paintings.

6. Diversified types: There are multiple styles such as general-purpose type, villa type, and compact type.

7. The high-voltage ring main unit can be equipped with a feeder terminal unit (FTU) to achieve reliable detection of short circuits and single-phase ground faults and possess the "four-remote" functions (remote measurement, remote signaling, remote control, and remote adjustment), facilitating the upgrade of distribution network automation. This series is widely used in both indoor and outdoor places such as urban power grid renovation, residential communities, high-rise buildings, industrial and mining enterprises, hotels, shopping malls, airports, railways, oil fields, docks, highways, and temporary power facilities.

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

功能与特点

1.高压开关设备、变压器、低压开关设备三位一体，成套性强;

2.高、低压保护完善，运行安全可靠，维护简单;

3.占地少、投资省、生产周期短、移动方便;

4.接地方案灵活多样;

5.结构独特：独特蜂窝式结构双层(复合板)外壳牢固，隔热又散热通风、美观、防护等级高，外壳材料有不锈钢合金、铝合金、冷轧板、彩钢板、贴瓷砖、贴木条、新型环保材料、表面水彩画可选;

6.型式多样：通用型、别墅型、紧凑型多种样式;

7.高压环网柜内可装配网自动化终端(FTU)实现短路及单相接地故障的可靠检测具备“四遥”功能，便于配网自动化升级。本系列广泛用于城市电网改造、住宅小区、高层建筑、工矿、宾馆、商场、机场、铁路、油田、码头、高速公路以及临时性用电设施等户内外场所。

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

Overall Structure

a. The product is mainly divided into three parts: the high-voltage switchgear room, the transformer room, and the low-voltage switchgear room. These three parts can be transported separately.

b. The product adopts a unique large-cycle heat dissipation design to ensure the temperature rise level of the product. Each room is individually sealed, and there will be no heat exchange between the rooms.

c. The product enclosure is made of high-quality stainless steel plates. All parts of the steel plate structure have undergone special anti-corrosion treatment. The stainless steel plate structure has extremely strong corrosion resistance and good mechanical strength.

d. The product can be directly installed indoors without the need for an additional building foundation, saving costs and space and being convenient to install.

◆ High-Voltage Room

The high-voltage side adopts the SF6 gas-filled switchgear independently developed by our company. All switchgear, busbars, etc. are sealed in a closed stainless steel box, and there are no exposed live parts on the outside. It operates safely and has high reliability. With a fully modular design, all modules can realize the connection methods of side outgoing lines and top expansion according to the power consumption requirements, maximizing the satisfaction of the power supply scheme needs.

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

◆ Low-Voltage Room

The incoming and outgoing lines on the low-voltage side all adopt new molded case circuit breakers. The switches are small in size, free of arc flash, and convenient to replace. There are also multifunctional intelligent integrated protection controllers and new integrated reactive power compensation devices.

◆ Transformer Room

The transformer adopts an epoxy resin fully insulated transformer. The insulation heat-resistant grade is F level. The transformer contains no combustion-supporting materials and does not generate any environmentally unfriendly gases or other intermediate products during operation. It has good flame retardancy, environmental protection, and energy-saving characteristics.

◆ Internal Connection

The connection between the transformer and the medium-voltage solid switch adopts the solid insulation cable accessories of our company, which is safe, reliable, and fully insulated.

⊙ High-Voltage Side

For the high-voltage side of the intelligent integrated substation, the load switch - fuse combined electrical appliance protection is generally adopted. After one phase of the fuse is blown, the three phases will be tripped in联动 (simultaneously). The load switch has types such as pneumatic, vacuum, and sulfur hexafluoride to choose from. It can be equipped with a distribution operating mechanism to realize automation upgrade. The fuse is a high-voltage current-limiting fuse with a striker, reliable operation, and large breaking capacity. The main technical parameters are shown in the following table. For transformers with a capacity of more than 800 kVA, vacuum circuit breakers such as ZN12, ZN28, and VS1 can be selected for protection.

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

整体结构

a、产品主要分：高压开关室、变压器室、低压开关室三部份，三部份可分体运输。

b、产品采用独特的大循环散热设计保证产品温升水平，各室之间单独密封不会形成各室之间的热交换。

C、产品外壳采用优质不锈钢板制作。钢板结构的各个零部件均经过特殊的防腐处理，不锈钢板结构具有极强的耐腐蚀能力和良好的机械强度。

d、产品可直接安装在户内，不需要另外建筑基础，节约成本及空间，安装方便。

◆ 高压室

高压采用本公司自主研发的SF6充气开关柜，把所有开关设备、母线等密封在密闭的不锈钢箱体内，外部无裸露带电体。运行安全、可靠性高全模块化设计，所有模块都可根据用电要求实现侧出线及顶部扩展的连接方式，最大限度的满足供电方案的需要。

◆ 低压室

低压侧进出线均采用新型塑壳断路器，开关体积小、无飞狐、更换方便;多功能智能综合保护控制器及新型集成无功补偿装置。

◆ 变压器室

变压器采用环氧树脂全绝缘变压器，绝缘耐热等级为F级，变压器无任何助燃材料，在运行中不产生任何不利于环境的气体或其他中间产物，具有良好的阻燃，环保、节能等特性。

◆ 内部连接

变压器与中式固体开关之间采用本公司的固体绝缘电缆附件连接，安全可靠，全绝缘。

⊙ 高压侧

智能型一体化变电站高压一般采用负荷开关—一熔断器组合电器保护，熔断器一相熔断后，三相联动脱扣，负荷开关有压气式、真空、六氟化硫等型式可选，可配电操作机构，实现自动化升级;熔断器为高压限流熔断器，带撞击器，动作可靠，开断容量大，主要技术参数见下表。对于800kVA以上的变压器，可选用ZN12，ZN28，VS1等真空断路器保护。

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

Technical parameters of load switch　负荷开关技术参数

name名称	单位	FN12-12负荷开关	FZN25-12真空负荷开关
Rated voltage额定电压	KV	10	
Maximum operating voltage最高工作电压	KV	12	
Rated frequency额定频率	HZ	50	
Current rating额定电流	A	630	
Rated interrupting load current额定开断负荷电流	A	630	
Thermally stable current (rms)热稳定电流（有效值）	KA/S	20/2	20/4
Dynamic stabilization current动稳定电流	KA	50	50
Short-circuit closing current (peak)短路关合电流（峰值）	KA	50	50
Number of full-load breaks满负荷开断次数	次	20	10000
Mechanical life机械寿命	次	2000	10000
1min power frequency withstand voltage (phase-to-phase and ground-to-ground) 1min工频耐压（相间及对地）	KV	42	42
Lightning impulse voltage (phase-to-ground) 雷电冲击电压（相间对地）	KV	75	75

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

Technical parameters of high-voltage fuse高压熔断器技术参数

serial number 序号		Rated voltage 额定电压	Current rating 额定电流	Interrupting current 开断电流	Fuse the rated current 熔断额定电流
British model 英国型号	Domestic model 国内型号	KV	A	KA	A
SDL**J	XRNT-12	12	40	31.5	6.3，10.16.20.25.31.5.40
SFL**J		12	100	31.5	50.63.71.80.100
SKL**J		12	125	31.5	25

Technical parameters of low-voltage circuit breaker低压断路器技术参数

Model型号	Tripper form脱扣器形式	Tripper rated current A 脱扣器额定电流A	On-off capability 通断能力KA
DW15-630	Thermal-electromagnetic or electronic热电磁型或电子型	315,400,630	40
DW15-1000		630,800,1000	50
DW15-1600		1600	50
DW15-2500		1600,2000,2500	60
CW1-2000	Intelligent智能型	630,800,1000,1250,1600,2000	65
CW1-3200		2000,2500,3200	100

YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

Performance parameters　性能参数

	project项目	unit单位	parameter参数
High voltage unit 高压单元	Rated frequency额定频率	HZ	50
	Rated voltage额定电压	KV	6,10，35
	Maximum operating voltage最高工作电压	KV	6.9,11.5,40.5
	Current rating额定电流	A	400/630/1250
	Transfer the current转移电流	A	1200-3150
	Power frequency withstand voltage工频耐受电压	KV	42/48
	Withstand lightning impulse voltage雷电冲击耐压	KV	75/85
	Rated short-circuit interrupting current (current limiting fuse)额定短路开断电流（限流熔断器）	KA	31.5
Transformer unit 变压器单元	Rated voltage额定电压	KV	6/10/35
	Rated capacity额定容量	KVA	30-2000
	Tap range分接范围	%	±2*2.5%、±5%
	Connecting groups联结组别		Yyn0、Dyn11
	Impedance voltage阻抗电压	%	4/4.5/6/8
	Rated voltage额定电压	V	220/380/690/800
Low-voltage unit 低压单元	Rated current of the main circuit主回路额定电流	A	50-4000
	Tributary current支路电流	A	5-800
enclosure 外壳	Ingress Protection (Conventional Products)防护等级（常规产品）		高压室IP33；变压器室IP23；低压室IP33
	Noise level噪声水平	dB	≤50

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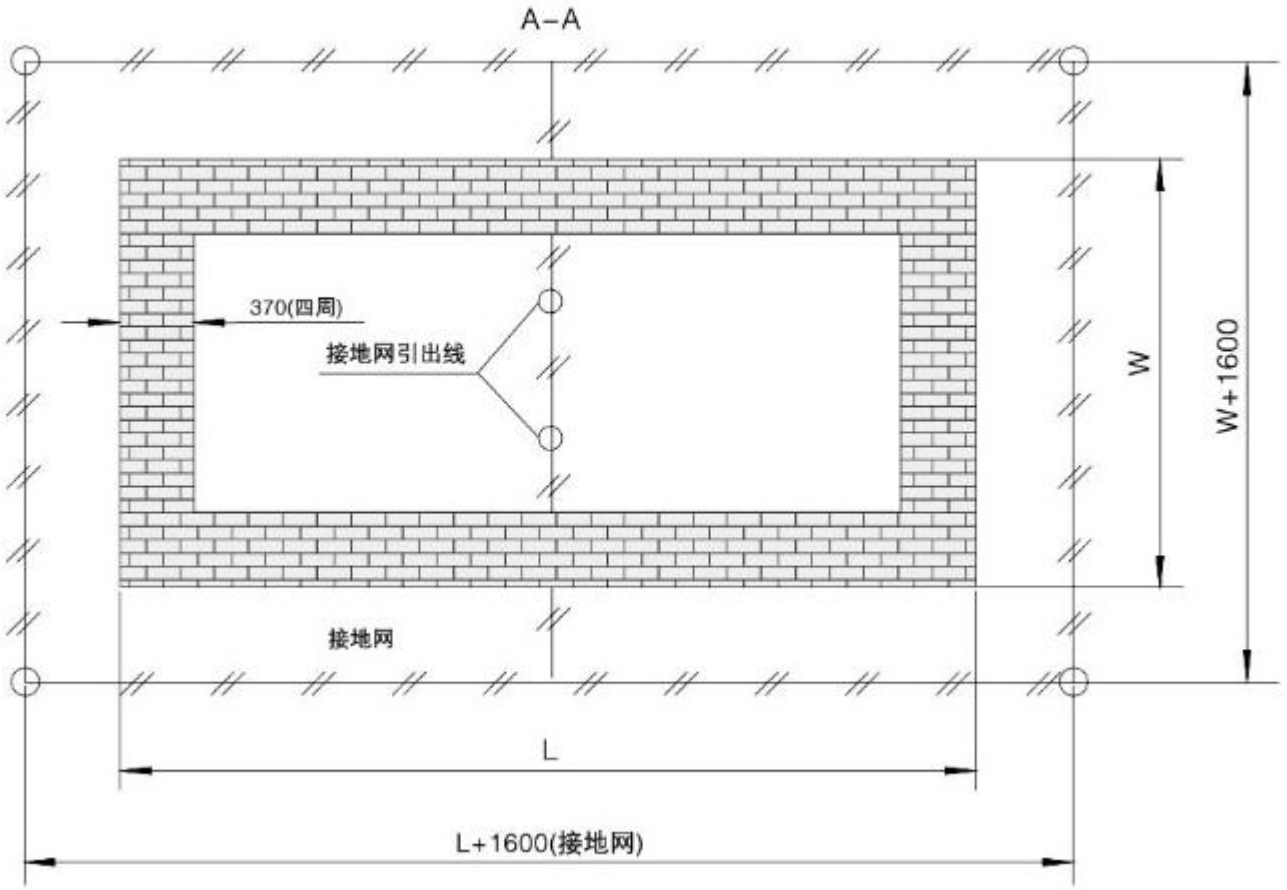


YB□-12 pre-assembled box-type substation

YB□-12 预装式箱式变电站

变电站高压室

变电站变压器室

变电站低压室

YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变

Product Overview

The landscape buried substation (hereinafter referred to as the "buried box-type transformer substation") mainly consists of an underground transformer and outdoor switchgear in the form of an advertising light box. The underground transformer is a new type of compact substation equipment that combines a transformer, a high-voltage load switch, a fuse, etc. It is installed in an underground pit, does not occupy surface space, and can operate while being submerged in water for a certain period of time. The outdoor switchgear in the form of an advertising light box is a hybrid structure integrating advertising billboards and outdoor switchgear, and is installed on the ground. Inside the box body are high and low-voltage switchgear cabinets, and on both sides are advertising light boxes, presenting an excellent visual effect.

The landscape buried substation conforms to the urban ecological design concept, occupies a small area, beautifies the environment, and is applicable to places such as urban traffic trunk roads, residential areas, airports, stations, and highways. It will become the trend of the transformation of urban distribution network equipment.

产品概述

景观型地埋式变电站(以下简称：地埋式箱变)主要由地下式变压器和广告灯箱式的户外开关设备组成。地下式变压器是由变压器、离压负荷开关、熔断器等组合在一起的一种新型的紧凑型的变电设备，它安装在地坑中，不占用地表空间，而且能在一段时间内浸没在水中运行。广告灯箱式的户外开关设备为集广告牌及户外开关设备与一体的混合结构，安装在地面。箱体内部为离低压开关柜，两侧为广告灯箱，具有极值的视觉效果。

景观型地埋式变电站符合城市生态设计理念，占地面积小，美化环境，适用于城市交通主干道、住宅区、机场、车站、离速公路等场所，将成为城市配网设备的改造趋努。

YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变

⊙ High Reliability

The enclosure of the underground transformer selected for the buried box-type transformer substation is made of anti-corrosion stainless steel and is fully sealed. The incoming and outgoing lines for high and low voltages adopt a waterproof, fully sealed, fully insulated and fully shielded wiring method, ensuring the anti-corrosion and sealing capabilities of the buried transformer. The overall protection level reaches IP68, enabling it to operate while being submerged in water for a short period of time.

The high-voltage protection configuration is flexible. It can either use SF6 fully insulated ring main units for protection or adopt the method of oil-immersed load switch + plug-in and backup fuses at the front end of the underground transformer for full-range protection. When a fault occurs in the transformer, the fault point can be quickly cut off without affecting the operation of the overall circuit.

When designing and constructing the underground pit foundation, waterproofing and drainage have been taken into consideration. The top ventilation holes have effective rainproof and waterproof functions. The sides and bottom are treated with special waterproof materials. The cable inlet and outlet holes are all equipped with the Roxtec waterproof system to ensure that water seepage cannot penetrate. An automatic internal and external heat exchange system is installed inside the underground pit, and an automatic drainage control system is installed at the bottom.

The buried box-type transformer substation can operate while submerged in water and can withstand flood disasters. All these measures ensure a 20-year service life for the buried transformer, enabling maintenance-free and inspection-free operation and effectively improving the reliability of the power supply system.

YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变

⊙ **Energy Saving and Consumption Reduction**

Energy saving and consumption reduction has become the consensus of the whole society. The underground transformer preferentially selected for the buried box-type transformer substation is a low-loss product. Low-loss transformers such as S11 series, S13 series, and SBH15 series can be selected according to user demand.

⊙ **Noise Reduction**

As we all know, the main factor influencing the surrounding residents caused by the box-type transformer substation can be said to be the noise of the transformer. The noise source of the transformer mainly comes from the iron core. The height of the transformer installed in an ordinary box-type transformer substation from the ground is generally about 1.2 meters. If the box-type transformer substation is installed close to the windows of residents, its noise will inevitably enter the residents' rooms at night when it is quiet and affect people's sleep. However, once the transformer or the whole box-type transformer substation is installed underground, its noise can be significantly reduced and has almost no impact on residents.

⊙ **Aesthetics and Environmental Harmony**

Ordinary box-type transformer substations occupy a relatively large area and are difficult to coordinate well with the surrounding environment. Especially in some high-end residential areas, the power distribution facilities or box-type transformer substations scattered in the community cannot be coordinated with the community environment, affecting the overall aesthetics of the community and even the sales of nearby buildings.

YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变

However, the buried box-type transformer substation will not affect the surrounding environment because the transformer is installed underground. The distribution box installed on the ground is small in size and has a flexible design, so it is easy to coordinate with the surrounding environment. For example, in a residential community, the ground distribution box can be matched with the community greening and become an elegant part of the community; such as on urban trunk roads and highways.

⊙ **Creating Value for Customers**

The landscape buried substation can be completely prefabricated in the factory, with a short production cycle, low investment and quick returns.

The landscape buried substation has an attractive appearance and is easy to coordinate with the surrounding environment. When installed in a residential community, it not only does not affect the sales of surrounding buildings but also improves the grade of the community.

For the buried box-type transformer substations installed on urban trunk roads and highways, the switchgear on the ground is in the form of an advertising light box, and its advertising light box positions will bring long-term advertising benefits.

⊙ **High Degree of Automation**

The landscape buried substation can use the integrated measurement and control device based on GPRS wireless network technology to report the operating status of the underground combined transformer and high and low-voltage switchgear to the management and control personnel, greatly facilitating the operation and use of the substation.

YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变

⊙ **高可靠性**

地埋式箱变所选用的地下式变压器箱体外充采用防腐不锈钢制作、全密封，离低压进出线采用防水全密封、全绝缘、全屏蔽的接线方式保证了地埋式变压器的防腐和密封能力.整体防护等级达IP68.可短时浸没在水中运行。

高压保护配置灵活。既可选用SF6全绝缘环网柜对其进行保护，也可在地下式变压器前端采用油浸式负荷开关+插入式和后备熔新器方式进行全范围保护。在变压器发生故障时，可迅速切断故降点，不影响整体线路运行。

地坑基础设计和制作时进行了防水及排水考虑，顶部通风孔具备有效的防雨、防水功能，侧部及底部用特种防水材料处理，电缆进出线孔润均采用洛克塞克防水系统，确保渗水不能侵入。地坑内部安装有内外自动换热系统，底部安装有自动排水控制系统。

地埋式箱变可以浸没在水中运行，能抵御洪涝灾害，所有各项措施保证地埋变20年的使用寿命，可实现免维护、免检修，有效地提离了供电系统的可靠性。

⊙ **节能降耗**

节能降耗已成为全社会的共识，地埋式箱变优先选用的地埋式变压器为低损耗产品，可根提用户供求选用S11系列、S13系列、SBH15系列等低损耗变压器。

YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变

⊙ **降低噪声**

众所周知，箱式变电站对周围居民的影响主要的因素可以说是变压器的燥声。变压器的声源主要来自铁心，安装在普通箱变里的变压器离地离地高度一般在1.2m左右，如果箱变安装在离居民窗口较近时，在夜深人静时其燥声不可避免的会传入居民室影响人们的睡眠。而一旦将变压器或箱变整体安装在地下，其燥声可以明显下降，对居民几乎没有影响。

⊙ **美观与环境协调**

一般的箱变占地面积较大，灌以很好的与周边环境协调。特别是在一些高档的生活小区，杂处在小区的配电设施或箱式变电站不能与小区环境相协调，影响到小区整体的美观，甚至会彩响到附件楼盘的销售。而地埋式箱变因为将变压器安装在地下，不会影响到周边环境。安装在地面的配电箱由于其体积小，设计灵活，很容男与周图环境相协调。如在生活小区里，地面的配电箱可以与小区绿化配套，成为小区别致的一部分;如在城市主干道和高速公路。

⊙ **为客户创造价值**

景观型地埋式变电站可完全在工厂预制，生产周期短，投资小，见效快。

景观型地埋式变电站造型美现、易与周围环境相协调。安装在生活小区，不但不影响周围楼盘的销量，提升小区的品位。

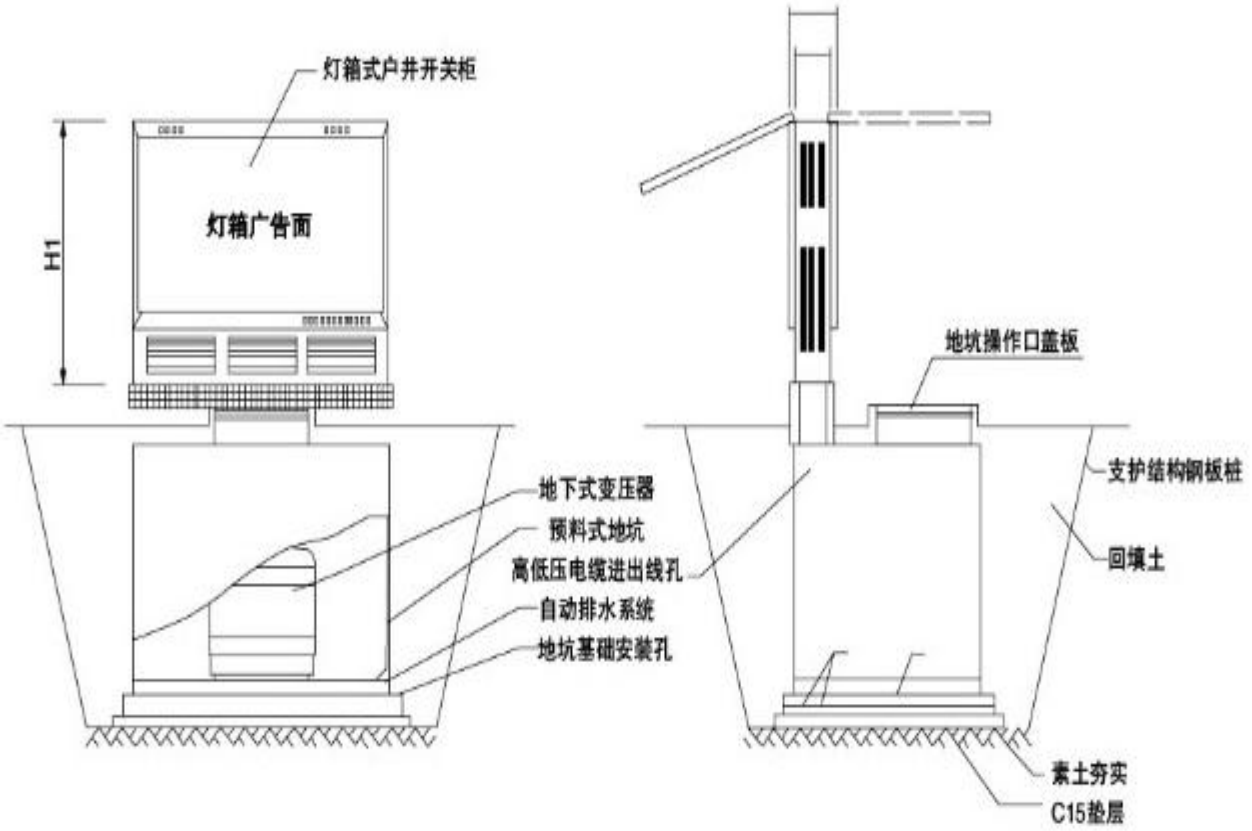
安装在城市主干道及高速路上的地埋式箱变，地面上为广告灯箱式的开关设备，其广告灯箱位将长期的广告益。

⊙ **自动化程度高**

景观型地埋式变电站可通过采用GPRS 无线网络技术的综合测控装置，向控管人员报告地下式组合变压器和高、低压开关设备的运行状况，极大的方便了对变电站的操控和使用

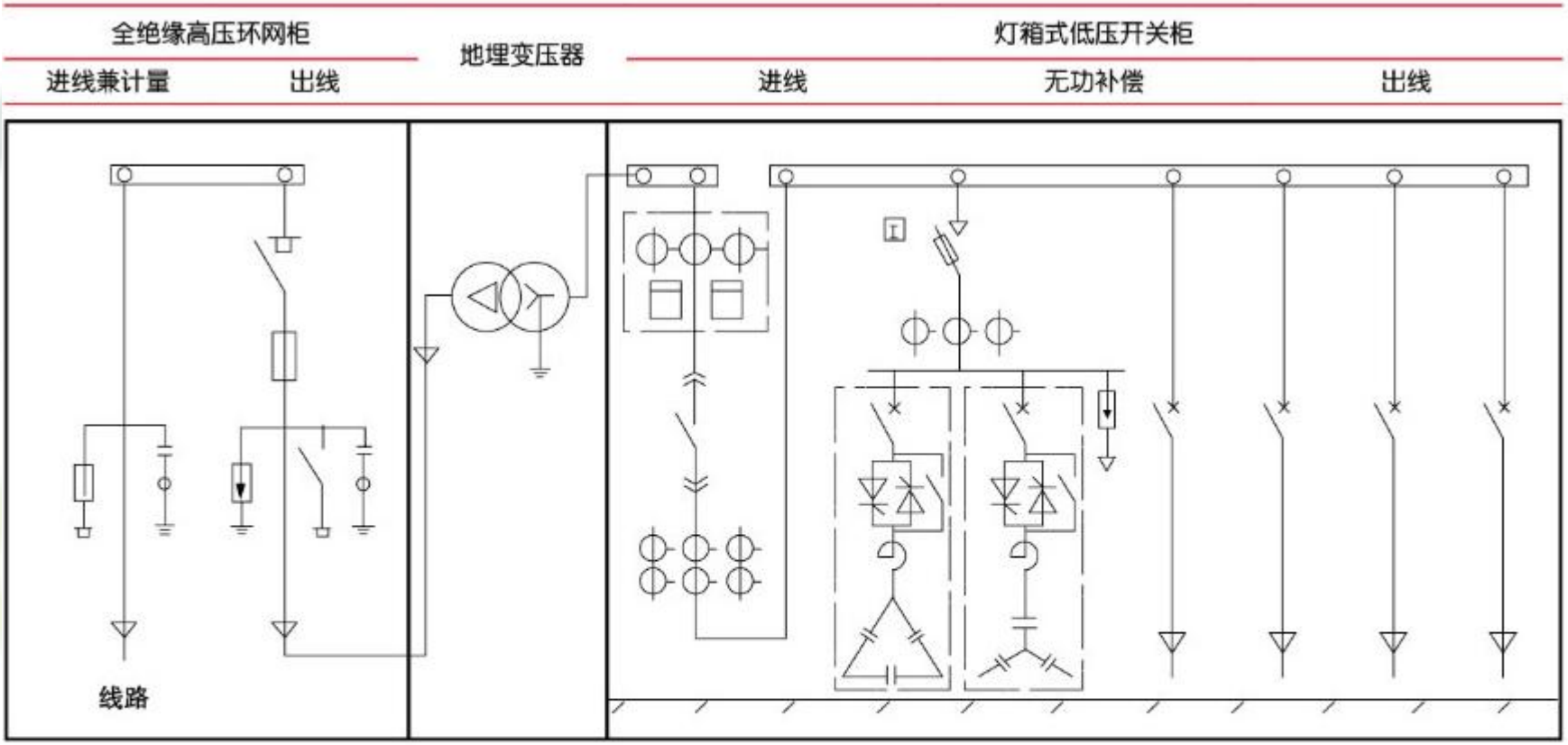
YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变



YBD-12 Landscape Buried Box-type Transformer Substation

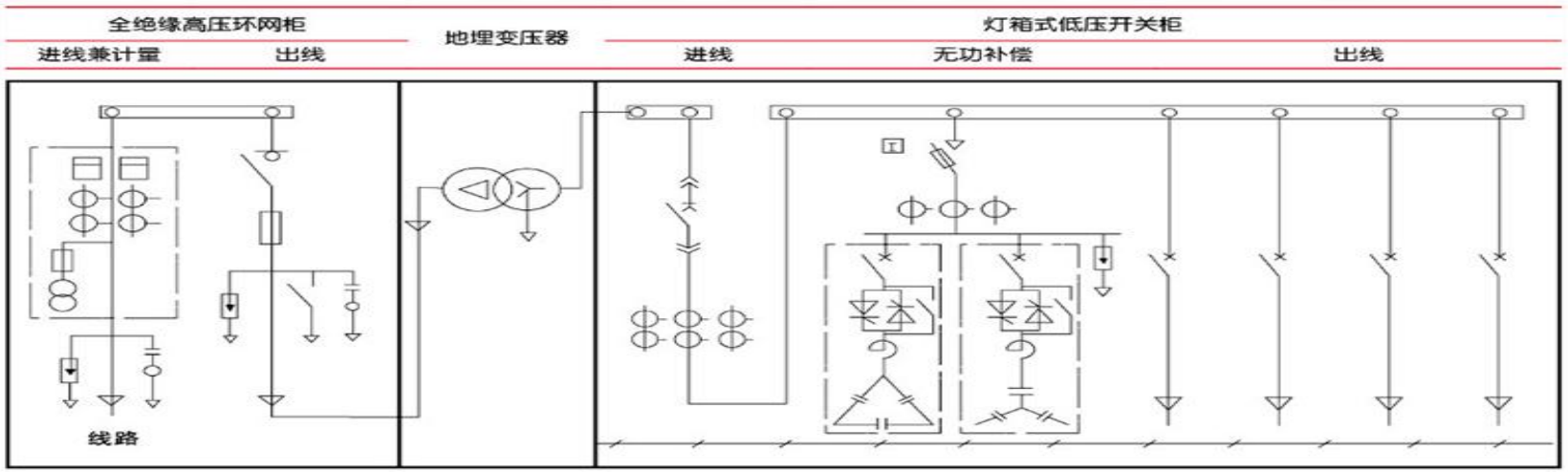
YBD-12 景观型地埋式箱变



变压器容量 (KVA)	80~315	480~630
地坑尺寸 (宽 W × 深 D × 高 H)(mm)	2400 × 1800 × 2150	2600 × 2600 × 2350
底表开关设备尺寸（宽 W × 深 D × 高 H）(mm)	2400 × 940 × 2350	2600 × 940 × 2400

YBD-12 Landscape Buried Box-type Transformer Substation

YBD-12 景观型地埋式箱变



变压器容量 (KVA)	80~315	480~630
地坑尺寸（宽 W× 深 D× 高 H)(mm)	2800 × 1800 × 2150	3000 × 2600 × 2350
底表开关设备尺寸（宽 W× 深 D× 高 H）(mm)	2800 × 940 × 2350	3000 × 940 × 2400

YBW-12 combined Box-type Transformer Substation

YBW-12 欧式组合式变电站

Product Structure

1. This product is formed by connecting the high-voltage distribution device, transformer and low-voltage distribution device, and is divided into three functional compartments, namely the high-voltage compartment, the transformer compartment and the low-voltage compartment. The high-voltage and low-voltage compartments have complete functions. The primary power supply system on the high-voltage side can be arranged in various power supply modes such as ring network power supply, terminal power supply and dual-power supply. High-voltage metering elements can also be installed to meet the requirements of high-voltage metering. For the transformer compartment, S9, SC and other series of low-loss oil-immersed transformers or dry-type transformers can be selected. According to the requirements of users, the low-voltage compartment can adopt the panel or cabinet-mounted structure to form the power supply scheme provided by users, with multiple functions such as power distribution, lighting distribution, reactive power compensation, electric energy metering and electric quantity measurement, meeting different requirements of users and facilitating users' power supply management and improving the power supply quality.

2. The structure of the high-voltage compartment is compact and reasonable, and has a comprehensive anti-misoperation interlocking function. When requested by users, the transformer can be equipped with rails, which can conveniently enter and exit from the large doors on both sides of the transformer compartment. Each compartment is equipped with an automatic lighting device. In addition, all components selected for the high-voltage and low-voltage compartments have reliable performance, are easy to operate, making the product operate safely and reliably and be convenient to maintain.

3. Two ventilation methods, natural ventilation and forced ventilation, are adopted. The transformer compartment, the high-voltage compartment and the low-voltage compartment all have ventilation ducts. The exhaust fans are equipped with temperature control devices that can automatically start and shut down according to the set temperature to ensure the normal operation of the transformer.

4. The box structure can prevent rainwater and dirt from entering. The materials are made of color steel plates, which have anti-corrosion and heat insulation functions. It has the conditions for long-term outdoor use, ensuring anti-corrosion, waterproof and dustproof performance, with a long service life and an aesthetic appearance at the same time.

YBW-12 combined Box-type Transformer Substation

YBW-12 欧式组合式变电站

产品结构

1.本产品由高压配电装置、变压器及低压配电装置联接而成，分成三个功能隔室，即高压室、变压器室和低压室，高、低压室功能齐全，高压侧一次供电系统，可布置成环网供电、终端供电、双电源供电等多种供电方式，还可装设高压计量元件，满足高压计量的需求，变压器室可选择S9、SC以及其他系列低损耗油浸式变压器或干式变压器;低压室根据用户要求可采用面板或柜装式结构组成用户所提供电方案，有动力配电、照明配电、无功功率补偿、电能计量和电量测量等多种功能，满足用户的不同要求。并方便用户的供电管理和提高供电质量。

2.高压室结构紧凑合理，并具有全面防误操作联锁功能。变压器在用户有要求时，可设有轨道能方便地从变压器室两侧大门进出。各室均有自动照明装置，另外高、低压室所选用全部元件性能可靠、操作方便、使产品运行安全可靠、维护方便。

3.采用自然通风和强迫通风两种方式。变压器室和高、低压室均有通风道，排风扇有温控装置按整定温度能自动启动和关闭，保证变压器正常运行。

4.箱体结构能防止雨水和污物进入，材料选用彩色钢板制作，有防腐隔热功能。具备长期户外使用的条件，确保防腐、防水、防尘性能，使用寿命长，同时外形美观。

YBW-12 combined Box-type Transformer Substation
YBW-12 欧式组合式变电站
Technical parameters of load switch　负荷开关技术参数

name名称	单位	FN12-12负荷开关	FZN25-12真空负荷开关
Rated voltage额定电压	KV	10	
Maximum operating voltage最高工作电压	KV	12	
Rated frequency额定频率	HZ	50	
Current rating额定电流	A	630	
Rated interrupting load current额定开断负荷电流	A	630	
Thermally stable current (rms)热稳定电流（有效值）	KA/S	20/2	20/4
Dynamic stabilization current动稳定电流	KA	50	50
Short-circuit closing current (peak)短路关合电流（峰值）	KA	50	50
Number of full-load breaks满负荷开断次数	次	20	10000
Mechanical life机械寿命	次	2000	10000
1min power frequency withstand voltage (phase-to-phase and ground-to-ground) 1min工频耐压（相间及对地）	KV	42	42
Lightning impulse voltage (phase-to-ground) 雷电冲击电压（相间对地）	KV	75	75

YBW-12 combined Box-type Transformer Substation
YBW-12 欧式组合式变电站
Technical parameters 技术参数

	project项目	unit单位	parameter参数		
High voltage unit高压单元	Rated frequency额定频率	HZ	50		
	Rated voltage额定电压	KV	6	10	35
	Maximum operating voltage最高工作电压	KV	6.9	11.5	40.5
	Current rating额定电流	A	400	630	1250
	Transfer the current转移电流	A	1200-3150		
	Power frequency withstand resistance工频耐受电阻	KV	42/48		
	Withstand lightning impulse voltage雷电冲击耐压	KV	75/85		
	Rated short-circuit interrupting current额定短路开断电流	KA	31.5		
Transformer unit变压器单元	Rated voltage额定电压	KV	6	10	35
	Rated capacity额定容量	KVA	30-2000		
	Tap range分接范围	%	±2*2.5%	±5%	
	Connecting groups联结组别		Yyn0	Dyn11	
	Impedance voltage阻抗电压	%	4	4.5/6/8	
Low-voltage unit低压单元	Rated voltage额定电压	V	220/380/690/800		
	Rated current of the main circuit主回路额定电流	A	50-4000		
	Tributary current支路电流	A	5-800		
enclosure 外壳	Ingress protection 防护等级	High pressure chamber IP33; Transformer room IP23; Low pressure chamber IP33 高压室IP33；变压器室IP23；低压室IP33			

YBW-12 combined Box-type Transformer Substation

YBW-12 欧式组合式变电站

Technical parameters 技术参数

平面布置形式及外形尺寸

YBW系列预装式变电站，根据排列方式分”目“字形排列(图1-1、图1-2);”品“字形排列(图1-3、图1-4)。外形尺寸见图2、图3。

The YBW series of prefabricated substations are arranged according to the arrangement of "mu" (Fig. 1-1, Fig. 1-2) and "Pin" (Fig. 1-3, Fig. 1-4). The dimensions are shown in Figure 2 and Figure 3.

图1 YBW系列预装式变电站平面布置形式图

Figure 1 YBW series prefabricated substation layout layout diagram

图1-1

图1-2

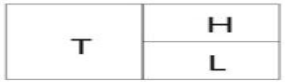


图1-3

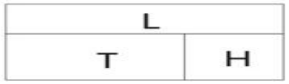
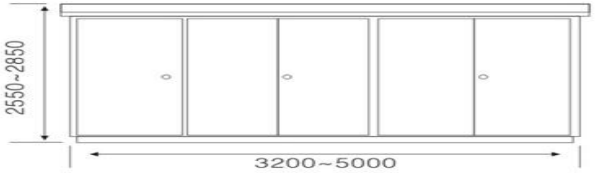


图1-4

H-高压室High voltage chamber T-变压器室Transformer room L-低压室Low voltage chamber

目字排列图



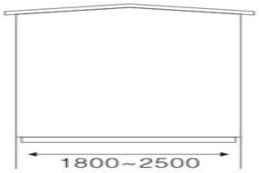
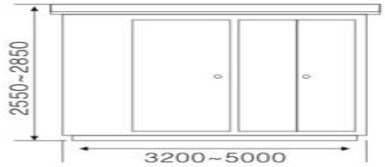


图2

品字排列图



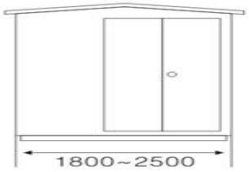


图3

订货须知 Ordering instructions

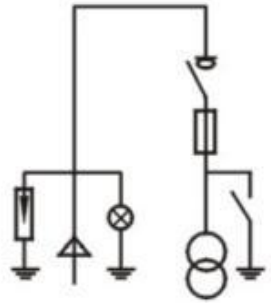
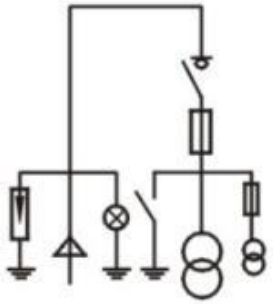
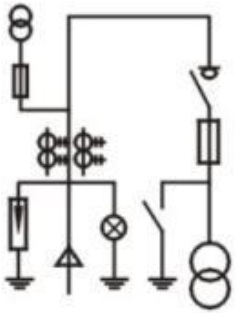
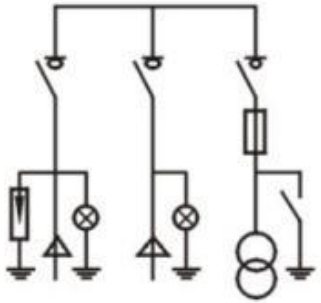
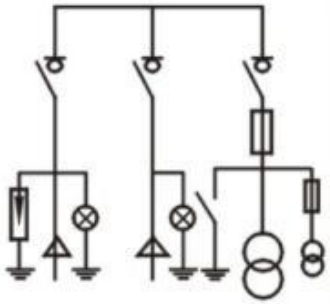
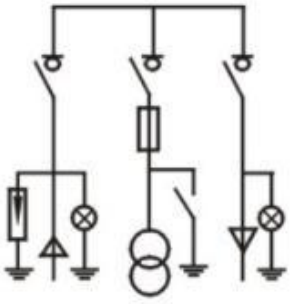
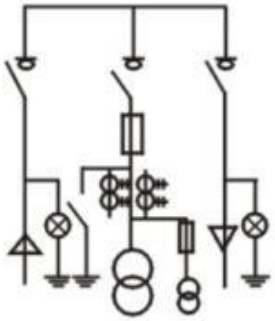
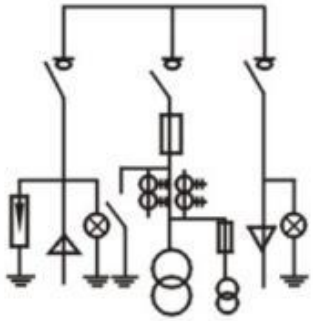
1.预装式变电站型式：
2.变压器型号和容量：
3.高、低压回路主接线方案图：
4.有特殊要求的电气元件型号和参数：
5.外壳颜色：
6.备品、备件的名称、数量以及其它要求

1. Prefabricated substation type:
2. Transformer model and capacity:
3. High and low voltage circuit main wiring scheme:
4. Types and parameters of electrical components with special requirements:
5. Shell color:
6. Names, quantities and other requirements of spare parts and spare parts

YBW-12 combined Box-type Transformer Substation

YBW-12 欧式组合式变电站

Technical parameters 技术参数

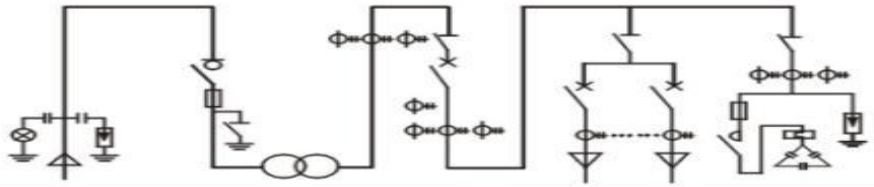
编号	1	2	3	4
接线方案				
编号	5	6	7	8
接线方案				

YBW-12 combined Box-type Transformer Substation

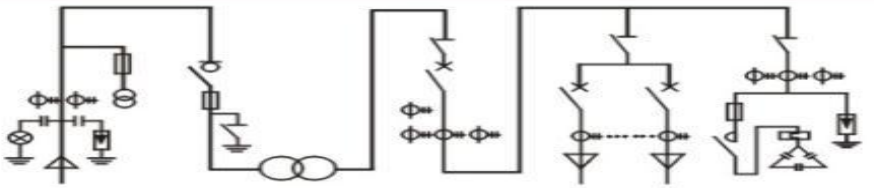
YBW-12 欧式组合式变电站

Technical parameters 技术参数

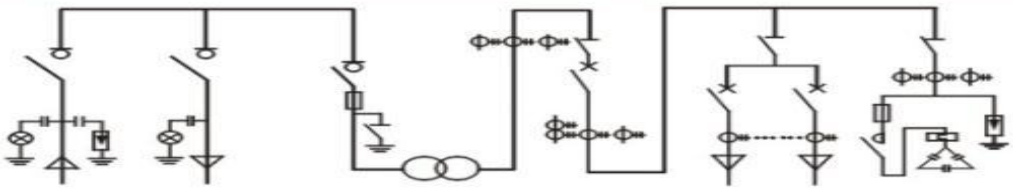
■终端低计



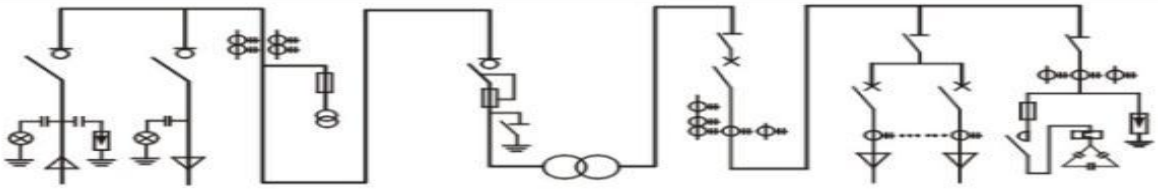
■终端高计



■环网低计



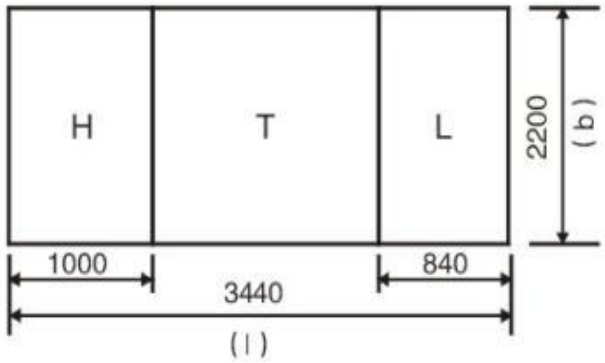
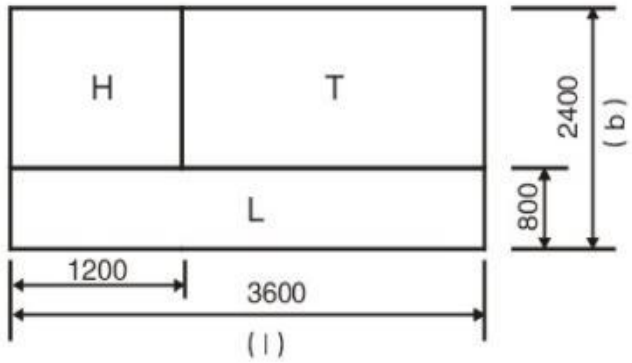
■环网高计



YBW-12 combined Box-type Transformer Substation

YBW-12 欧式组合式变电站

Technical parameters 技术参数

目字形结构	品字形结构
轮廓尺寸 长×宽×高 3740×2500×2400	轮廓尺寸 长×宽×高 3900×2700×2400
	
注：l与变压器型号，容量大小有关。 图中尺寸为S_{11}-M-630-10/0.4对应的尺寸。	注：b与变压器型号，容量大小有关。 图中尺寸为S_{11}-M-630-10/0.4对应的尺寸。

YBW-12 combined Box-type Transformer Substation

YBW-12 欧式组合式变电站

Technical parameters 技术参数

产品结构图特点

结构 1

型号	结构 1	外形尺寸	变压器容量（kVA）	低压室		高压室	
				低压柜（宽 × 深 × 高）	可应用低压标准方案	高压柜（宽 × 深 × 高）	可应用高压标准方案
YBP1		3000 × 2000	200–315	3000 × 600 × 1800	DZ1.DZ2	1000 × 940 × 1600	GZ1.GZ4
		3200 × 2300	400–630				
YBP2		3200 × 2300	200–630	2800 × 600 × 1800	DZ3.DZ4	1000 × 940 × 1600	GZ1.GZ4
YBP3		4000 × 2300	400–630	3600 × 600 × 1800	DZ3.DZ4	1500 × 940 × 1600	GZ3
YBP4		4900 × 2300	400–630	4400 × 600 × 1800	DZ3.DZ4	2300 × 940 × 1600	GZ3.GZ4

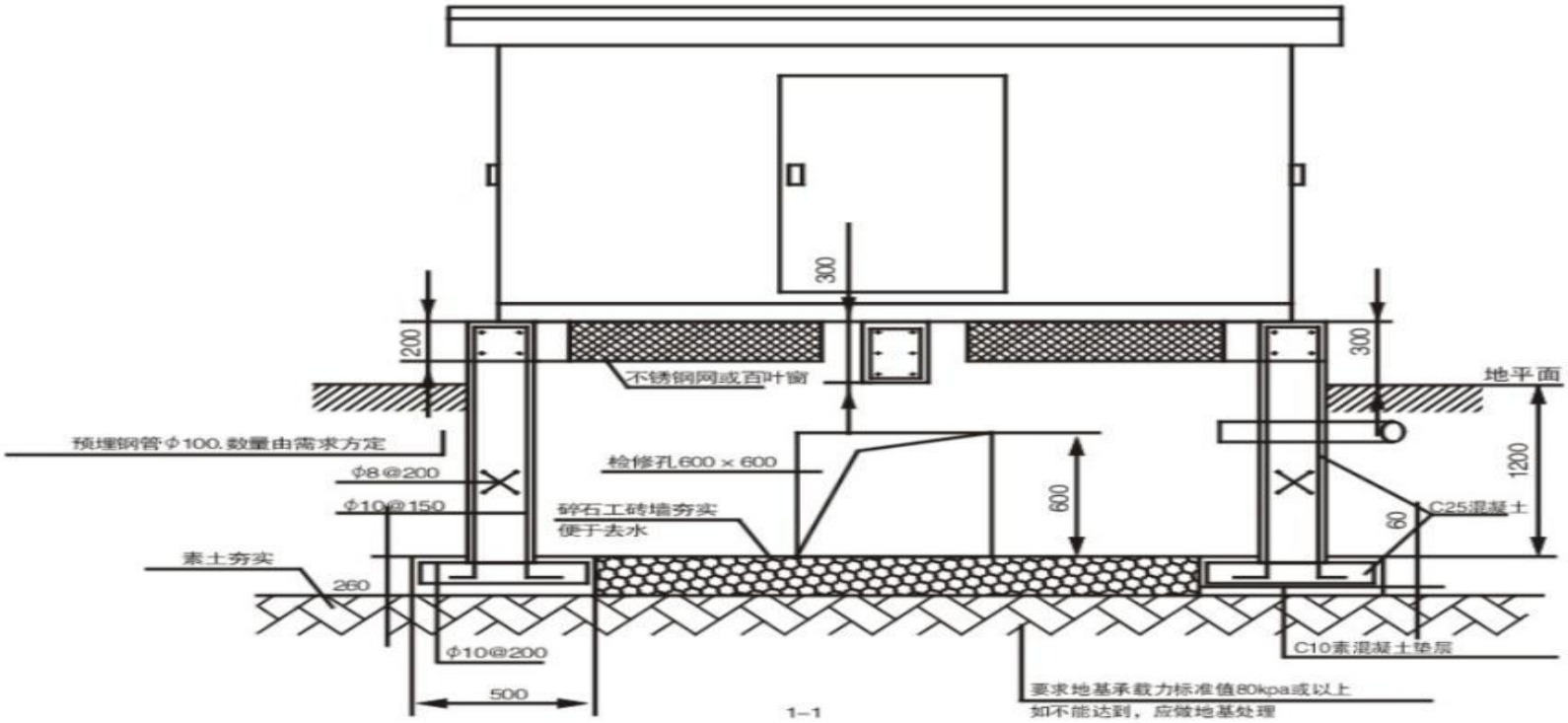
结构 2

型号	结构 1	外形尺寸	变压器容量（kVA）	低压室		高压室	
				低压柜（宽 × 深 × 高）	可应用低压标准方案	高压柜（宽 × 深 × 高）	可应用高压标准方案
YBP5		3900 × 2000	800	2000 × 600 × 1800	DZ1.DZ2	1800 × 940 × 1600	GZ2.GZ3.GZ4
		4700 × 2300		2800 × 600 × 1800	DZ3.DZ4	2300 × 940 × 1600	GZ5.GZ6
YBP6		4000 × 2400	1000	2000 × 600 × 1800	DZ1.DZ2	1800 × 940 × 1600	GZ2.GZ3.GZ4
		4700 × 2400		2800 × 600 × 1800	DZ3.DZ4	2300 × 940 × 1600	GZ5.GZ6
YBP7		4700 × 2500	1250	2000 × 600 × 1800	DZ1.DZ2	1800 × 940 × 1600	GZ2.GZ3.GZ4
				2800 × 600 × 1800	DZ3.DZ4	2300 × 940 × 1600	GZ5.GZ6

YBW-12 combined Box-type Transformer Substation

YBW-12 欧式组合式变电站

Technical parameters 技术参数



注：本基础应避开地质不均地段施工。
素砼底盘标号 C25
粘土砖强度 MU10
1：2水泥砂浆抹面
本基础砌筑前安装接地系统一付（4级，电缆坑内对角引上）
箱变基础四周均应有＞900mm的空间以方便箱变门开启。

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

Product Structure Features

1. It has a compact structure and a small size, which is only about 1/3 to 1.5 times that of domestic European-style box-type substations with the same capacity, greatly reducing the occupied area.

2. It features a fully sealed and fully insulated structure, requiring no insulation distance and reliably protecting personal safety.

3. The high-voltage wiring can be used for both ring networks and terminals, with a flexible power supply mode and high reliability.

4. The transformer has excellent performance: low loss, low noise, low temperature rise; strong overload capacity, strong short-circuit resistance and strong impact resistance.

5. It can meet various requirements for low-voltage outgoing feeders. It can be selected according to the plan or designed independently by users.

6. There are two types of cable heads, namely the 200A elbow-type plug and the 600A "T"-type fixed cable joint. Both can be equipped with fully insulated zinc oxide arresters. The 200A cable head can be plugged and unplugged under load and can also play the role of a disconnector.

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

产品结构特点

1.结构紧凑，体积小，仅为同容量国产欧式箱变的1/3~1.5左右，大大减少占地面积。

2.全密封、全绝缘结构，无需绝缘距离，可靠保护人身安全。

3.高压接线既可用于环网，又可用于终端，供电方式灵活，可靠性高。

4.变压器性能卓越：低损耗、低燥音，低温升;过载能力强，抗短路，耐冲击能力强。

5.满足各种低压馈出要求，可按方案选择，亦可自选设计;

6.电缆头有200A肘型插头600A“T”型固定式电缆接头两种，均可配置全绝缘氧化锌避雷器，200A型电缆头可以带负荷插拔，又可以起到隔离开关的作用。

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

Environmental Conditions for Use

◆ Ambient Temperature: The maximum air temperature is +40 °C, and the minimum air temperature is -30 °C.

◆ Altitude: ≤ 4000 m.

◆ Wind Speed: Equivalent to 34 m/s (not greater than 700 Pa).

◆ Humidity: The average daily relative humidity is not greater than 95%; the monthly relative humidity is not greater than 95%.

◆ Anti-vibration: The horizontal acceleration is not greater than 0.4 m/S², and the vertical acceleration is not greater than 0.15 m/S².

◆ Inclination of the Installation Site: Not greater than 3°.

◆ Installation Environment: The surrounding air is not significantly polluted by corrosive, flammable gases, etc., and there is no severe vibration at the installation site.

◆ When ordering this product beyond the provisions of the above conditions, you can consult with our company.

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

使用环境条件

◆ 环境温度：最高气温+40℃，最低气温-30℃;

◆ 海拔：≤4000m;

◆ 风速：相当34m/s(不大于700Pa);

◆ 湿度：日相对湿度平均值不大于95%;月相对湿度值不大于95%;

◆ 防震：水平加速不大于0.4m/S2，垂直加速度不大于0.15m/S2;

◆ 安装地点倾斜度：不大于3°;

◆ 安装环境：周围空气不受腐蚀性、可燃性气体等明显污染，安装地点无剧烈震动;

◆ 订购本产品超出上述条件的规定时，可与本公司协商。

ZBW-12 Prefabricated Box-type Substation (American Change)
ZBW-12预装式箱式变电站（美变）
Technical parameters 技术参数

project项目	Unit单位	parameter技术参数
Rated voltage额定电压	KV	10/0.4
Maximum operating voltage最高工作电压	KV	12
Rated frequency额定频率	HZ	50
Rated capacity额定容量	KVA	150-1600
1min power frequency withstand voltage1min工频耐压	KV	35
Lightning impulse voltage雷电冲击电压	KV	75
Cooling method冷却方式		Oil-immersed油浸式
The high-voltage backup fuse interrupts the current高压后备熔断器开断电流	KA	50
Plug-in fuse interrupting current插入式熔断器开断电流	KA	2.5
Ambient temperature环境温度	℃	-35-+40
The coil allows for a temperature rise线圈允许温升	k	65
No load voltage regulation无载调压		±5%或±2*-2.5%
Noise level噪声等级	dB	50
Ingress protection防护等级		IP43

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

Transformers Technical parameters　变压器技术参数

容量 kVA	电压 kV		联接组标号	空载电流 %			空载损耗 W			阻抗电压 %	负载损耗 w
	高压	低压		S9	S10	S11	S9	S10	S11		
160	10±5% 或 ±2×2.5%	0.4	Dyn11 Yyn0	1.4	1.4	0.2	400	320	255	4.0	2200
200				1.3	1.3	0.2	480	380	305		2600
250				1.2	1.2	0.2	560	450	360		3050
315				1.1	1.1	0.2	670	530	425		3650
400				1.0	1.0	0.15	800	650	505		4300
500				1.0	1.0	0.15	960	750	605		5100
630				0.9	0.9	0.15	1200	910	755		6200
800				0.8	0.8	0.15	1400	1080	980		7500
1000				0.7	0.7	–	1700	1260	–	4.5	10300
1250				0.6	0.6	–	1950	–	–		12000

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

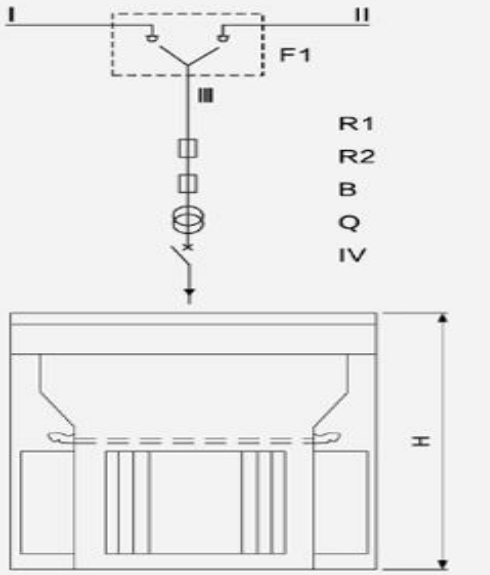
Technical parameters of Load switches 负载开关技术参数

项目 \ 名称		单位	315A	630A
额定电压		kV	12	12
最高电流		A	315	630
额定频率		Hz	50	50
额定短路关合电流		kA	31.5	50
额定短时耐受电流		kA	12.5	50
额定短时耐受时间		S	2	2
机械寿命		次	2000	2000
雷电冲击试验	相间对地	kV	75	75
	隔离断口		85	85
1min 工频耐受电压	相间对地	kV	42	42
	隔离断口		48	48
额定峰值耐受电流		kA	31.5	50

ZBW-12 Prefabricated Box-type Substation (American Change)

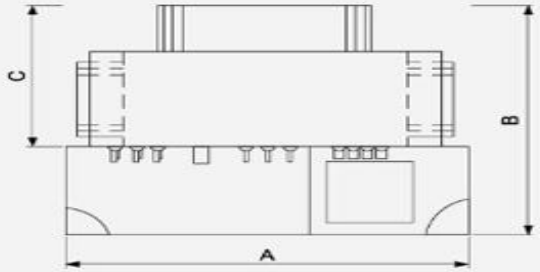
ZBW-12预装式箱式变电站（美变）

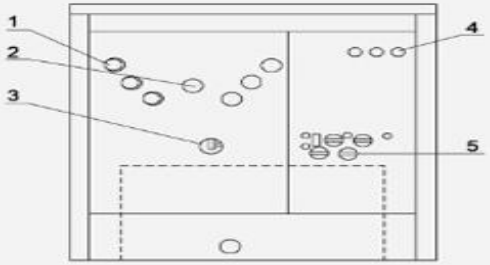
Technical parameters 技术参数



F1、环网负荷开关（或终端负荷开关）
R1、插入式熔断器；
R2、后备保护熔断器；
B、变压器；
Q、低压断路器；

图 1：12KV 预装式变电站原理图





1、高压绝缘套；
2、环网负荷开关；
3、分接开关；
4、插入式熔断器；
5、低压端子；

图 2：变电站外形及结构图

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

Technical parameters 技术参数

F1: Ring network load switch (or terminal load switch)

R1: Plug-in fuse

R2: Backup protection fuse

B: Transformer

Q: Low-voltage circuit breaker

1. High-voltage insulating bushing

2. Ring network load switch

3. Tap changer

4. Plug-in fuse

5. Low-voltage terminal

F1：环网负载开关（或终端负载开关）

R1：插入式熔断器

R2：后备保护熔断器

B：变压器

Q：低压断路器

1.高压绝缘套管

2.环网负载开关

3.分接开关

4.插入式熔断器

5.低压端子

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

Technical parameters 技术参数

Matching Table for Different Transformer Weights

匹配不同变压器重量表

容量	A	B	C	H	重量 KG
315kVA	2560	1600	600	1000	3050
400kVA	2560	1600	600	1000	3270
500kVA	2560	1600	600	1000	3400
630kVA	2560	1600	600	1000	3900
800kVA	2760	1600	800	1000	4200
lOOOkVA	2760	1950	800	1000	4800
1250kVA	2910	1950	800	1000	5400
1600kVA					

ZBW-12 Prefabricated Box-type Substation (American Change)

ZBW-12预装式箱式变电站（美变）

Technical parameters　技术参数

External Dimensions of Box-type Substation

箱变外形规格

⊙外形尺寸

ZBW □ -12 标准型外形尺寸

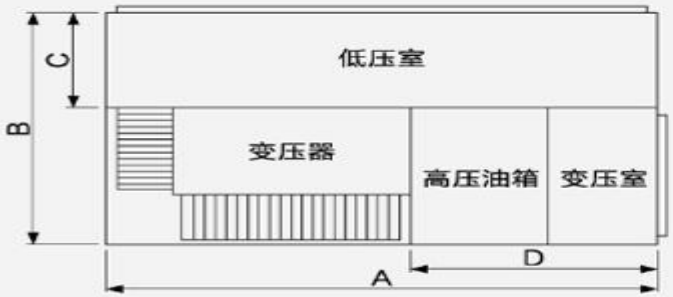
	容量 kVA	A	B	C	D	E	F	H
标准型	100-250	1900	1650	1250	650/800	600	1410/1560	1450
	315	1900	1650	1350	650/800	650	1460/1610	1450
	400-500	1900	1750	1450	650/800	650	1490/1640	1550
	630	1900	1750	1550	650/800	700	1580/1730	1550
	800	1900	1850	1550	650/800	700	1640/1790	1650
	1000	1900	1850	1650	650/800	700	1640/1790	1650

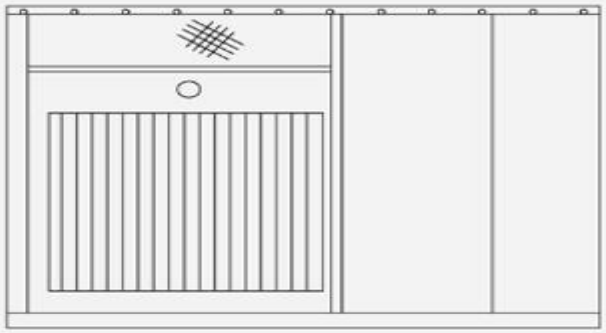
ZBW-12 Prefabricated Box-type Substation (American Change)

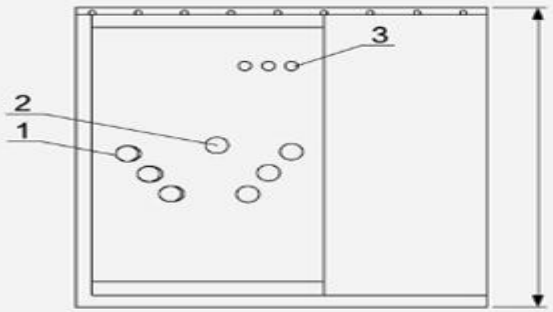
ZBW-12预装式箱式变电站（美变）

Technical parameters 技术参数

容量	A	B	C	H	重量 KG
200kVA 及以下	1830	1420	820	1850	小于 2800
250–400kVA	1830	1450	850	1980	3000–3300
500–630kVA	1830	1480	880	2070	3600–3950
800kVA	2200	1700	950	2170	4500







1、高压绝缘套管
2、环网负荷开关;
3、插入式熔断器

图 3：变压站外形及结构图

DFW outdoor high-voltage switching station

DFW型户外高压开闭所

Overview

The DFW-12 medium-voltage switching station is generally used for the reception and distribution of 10KV electric power. It is equipped with medium-voltage incoming and outgoing lines and can redistribute power. It is equivalent to the extension of the substation busbar and can be used to solve the problem of limited intervals for incoming and outgoing lines of the substation or the limitation of the incoming and outgoing line corridors, and plays a role in power supply support in the region. Generally, the switching station has two incoming lines and multiple outgoing lines. According to different requirements, circuit breakers and load switches can be installed on the incoming and outgoing lines. Its main functions are to reduce the scope of accidents and power outages, increase feeder lines and improve the reliability of power supply. It is widely applicable to the construction of urban power grids.

Structural Features

All-insulated cable joints are adopted for the connection of incoming and outgoing cables, which are easy to install and reliable in use.

The shell of the switching station is made of 304 stainless steel, which is beautiful, sturdy and corrosion-resistant.

It is designed with double-sided opening doors, facilitating operation and maintenance.

The roof adopts a double-layer design, with good heat insulation performance.

Special outdoor rainproof and anti-theft door locks are used.

DFW outdoor high-voltage switching station

DFW型户外高压开闭所

概述

DFW-12型中压开闭所一般用于10KV电力的接受与分配，设有中压进出线、对功率进行再分配。它相当于变电站母线的延伸，可用于解决变电站进出线间隔有限或进出线走廊受限，并在区域中起到电源支撑作用。开闭所一般两进多出，根据不同的要求，进出线可以设置断路器、负荷开关。其主要作用是缩小事故及停电范围、增加馈电线和提高供电可靠性。它广泛适用于城市电网建设。

结构特点

进出线电缆连接均采用全绝缘型电缆接头，安装简便、使用可靠;

开闭所外壳采用304不锈钢，美观坚固耐腐蚀;

双面对开门设计，便于操作和维护;

房盖采用双层设计，隔热性好;

专用的户外型防雨防盗门锁;

DFW outdoor high-voltage switching station
DFW型户外高压开闭所

Technical Parameters

Rated voltage: 12KV;

Rated current: 630A / 1250A;

Rated short-time withstand current: 20/25KA;

Rated peak withstand current: 50KA;

Closed-loop breaking current: 630A;

Annual leakage rate of SF6 gas: 10^{-7}cc/s;

Mechanical life: ≥ 3000 times;

Rated current breaking times: ≥ 300 times;

Protection level of the switching station shell: IP4X.

技术参数

额定电压：12KV;

额定电流：630A/1250A;

额定短时耐受电流 20/25KA;

额定峰值耐受电流：50KA；

闭环开断电流：630A；

SF6气体年泄漏率:10-7cc/s；

机械寿命：≥3000次；

额定电流开断次数：≥300次；

开闭所外壳防护等级：IP4X；

DFW outdoor high-voltage switching station
DFW型户外高压开闭所

Model and Its Meaning

DFW□□□K□

DFW: Outdoor high-voltage switching station

□: Quantity of incoming line circuits

□: Quantity of outgoing line circuits

□: Quantity of branch circuits

K: Switches are equipped on branch circuits

□: Quantity of switches on branch circuits

型号及含义

DFW□□□K□

DFW：户外高压开闭所

□：进线回路数量

□：出线回路数量

□：分支回路数量

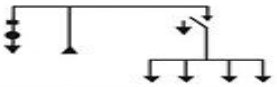
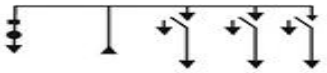
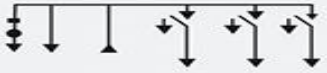
K：分支回路带开关

□：分支回路开关数量

DFW outdoor high-voltage switching station

DFW型户外高压开闭所

功能及特点

序号	名称	一次接线图	
DFW-102K	一进二分支 带一台开关		1180×1050×1600
DFW-103K	一进三分支 带一台开关		1250×1050×1600
DFW-104K	一进四分支 带一台开关		1250×1050×1600
DFW-112K	一进一出二分支 带一台开关		1350×1050×1600
DFW-113K	一进一出三分支 带一台开关		1420×1050×1600
DFW-114K	一进一出四分支 带一台开关		1420×1050×1600
DFW-102K2	一进二分支 带二台开关		1350×1050×1600
DFW-112K2	一进一出二分支 带二台开关		1500×1050×1600
DFW-103K3	一进三分支 带三台开关		1850×1050×1600
DFW-132K3	一进一出三分支 带三台开关		2000×1050×1600

注：用户可选配避雷器、短路故障指示器、熔断器等；

DFW 35KV European-style cable branch box

DFW35KV欧式电缆分支箱

Service Conditions

The European-style cable branch box is a cabling engineering equipment that has been widely used in power distribution network systems in recent years. Its main features include double-sided opening doors and the use of through-wall bushings as connecting busbars. It has remarkable advantages such as a small length, clear cable arrangement, and no need for large-span crossing for three-core cables. The cable joints it adopts comply with the DIN47636 standard. Generally, bolt-fixed connection type cable joints with a rated current of 630A are used.

Operating Environment

1. Ambient temperature: The maximum temperature is +40 °C, and the minimum temperature is -30 °C.
2. Wind speed: Equivalent to 34 m/s (not greater than 700 Pa·l).
3. Humidity: The average daily relative humidity is not greater than 95%; the average monthly relative humidity is not greater than 95%.
4. Anti-seismic: The horizontal acceleration is not greater than 0.4 m/s², and the vertical acceleration is not greater than 0.15 m/s².
5. Inclination of the installation site: Not greater than 3°.
6. Installation environment: The surrounding air should not be significantly polluted by corrosive, flammable gases, water vapor, etc., and there should be no severe vibration at the installation site.

DFW 35KV European-style cable branch box

DFW35KV欧式电缆分支箱

使用条件

欧式电缆分支箱是近年来广泛用于电力配网系统中的电缆化工程设备，它的主要特点是双向开门、利用穿墙套管作为连接母排，具有长度小、电缆排列清楚、三芯电缆不需要大跨度交叉等显著优点。其所采用的电缆接头符合DIN47636标准。一般采用额定电流630A螺栓固定连接式电缆接头。

使用环境

1、环境温度：最高气温+40℃，最低气温-30℃;

2、风速：相当34m/s(不大于700Pal);

3、湿度：日相对湿度平均值不大于95%;月相对湿度平均值不大于95%;

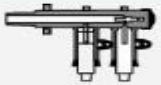
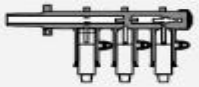
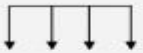
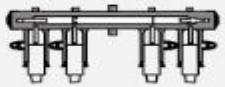
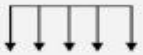
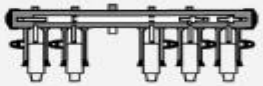
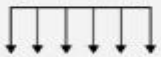
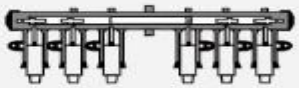
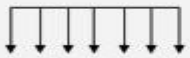
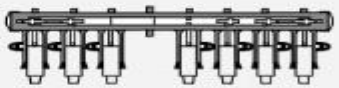
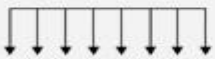
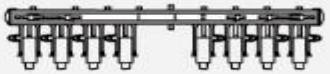
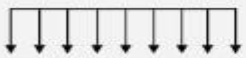
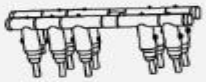
4、防震：水平加速度不大于0.4m/s2，垂直加速度不大于0.15m/s2;

5、安装地点倾斜度：不大于3°;

6、安装环境：周围空气应不受腐蚀性、可燃性气体、水蒸气等明显污染，安装地点无据烈震动。

DFW 35KV European-style cable branch box

DFW35KV欧式电缆分支箱

规格型号	接线方案	内部排列	外形尺寸
DFW □ –2			640 × 600 × 1000
DFW □ –3			760 × 600 × 1020
DFW □ –4			900 × 600 × 1020
DFW □ –5			1020 × 600 × 1020
DFW □ –6			1020 × 600 × 1020
DFW □ –7			1145 × 600 × 1020
DFW □ –8			1145 × 600 × 1000
DFW □ –9			940 × 1100 × 1000

Electrical equipment

电力设备

Electrical equipment

电力设备

Electrical equipment

电力设备

Wankong Electrical Equipment Co., Ltd. mainly sells eight categories of products, such as line ceramic insulators, glass insulators, composite insulators, tension insulators, pillar insulators, zinc oxide arresters, high and low voltage isolation switches, and drop-out fuses.

1. The main varieties of ceramic insulator products include: ordinary disc suspension porcelain insulator, stain-resistant disc suspension porcelain insulator, straw hat disc suspension porcelain insulator, ground wire disc suspension porcelain insulator, pin porcelain porcelain insulator, porcelain cross arm insulator, column porcelain insulator, butterfly porcelain insulator, tension porcelain insulator, tram porcelain insulator;

2. The main varieties of glass insulator products include: standard disc suspension glass insulator, stain-resistant disc suspension glass insulator, aerodynamic disc suspension glass insulator, ground wire glass insulator;

3. The main varieties of pillar porcelain insulator products include: ordinary rod pillar porcelain insulators, stain-resistant rod pillar porcelain insulators, heavy pollution resistant rod pillar porcelain insulators, indoor pillar porcelain insulators, indoor and outdoor rubber pillar porcelain insulators, indoor and outdoor rubber pillar porcelain insulators, indoor rubber pillar porcelain insulators, indoor joint rubber pillar porcelain insulators;

4. The main varieties of composite insulator products include: composite suspension insulators, composite pillar insulators, composite pin insulators, composite cross-arm insulators, composite lightning protection insulators, and disc-shaped suspension porcelain composite insulators;

5. The main varieties of arrester products include: composite and porcelain jacket zinc oxide arrester;

6. The main varieties of high and low voltage isolation switch products include: indoor and outdoor high and low voltage isolation switches;

7. The main varieties of high-voltage fuse products include: outdoor high-voltage cut-out fuse;

Electrical equipment

电力设备

万控电气设备公司主要销售线路陶瓷绝缘子、玻璃绝缘子、复合绝缘子、拉紧绝缘子、支柱绝缘子、氧化锌避雷器、高低压隔离开关、跌落式熔断器等八大类产品：

1、陶瓷绝缘子类产品主要品种包括：普通盘形悬式瓷绝缘子、耐污盘形悬式瓷绝缘子、草帽型盘形悬式瓷绝缘子、地线型盘形悬式瓷绝缘子、针式瓷绝缘子、瓷横担绝缘子、柱式瓷绝缘子、蝶式瓷绝缘子、拉紧瓷绝缘子、电车瓷绝缘子；

2、玻璃绝缘子类产品主要品种包括：标准型盘形悬式玻璃绝缘子、耐污型盘形悬式玻璃绝缘子、空气动力型盘形悬式玻璃绝缘子、地线型玻璃绝缘子；

3、支柱瓷绝缘子类产品主要品种包括：普通型棒形支柱瓷绝缘子、耐污型棒形支柱瓷绝缘子、耐重污型棒形支柱瓷绝缘子、户内支柱瓷绝缘子、户内外胶装支柱瓷绝缘子、户内内胶装支柱瓷绝缘子、户内联合胶装支柱瓷绝缘子；

4、复合绝缘子类产品主要品种包括：复合悬式绝缘子、复合支柱绝缘子、复合针式绝缘子、复合横担绝缘子、复合防雷绝缘子、盘形悬式瓷复合绝缘子；

5、避雷器类产品主要品种包括：复合及瓷外套氧化锌避雷器；

6、高低压隔离开关类产品主要品种包括：户内、外高低压隔离开关；

7、高压熔断器类产品主要品种包括：户外高压跌落式熔断器；

ZW32-12F sectionalizing switch

ZW32-12F分界开关

Example of the meaning of model numbers: ZW32-12(G)/M630-20

Z: Vacuum circuit breaker

W: Outdoor

32: Design serial number

12: Rated voltage (KV)

G: Isolating switch (optional)

M: Permanent magnet mechanism

630: Rated current (A)

20: Rated short-circuit breaking current (KA)

型号含义举例：ZW32-12（G）/M630-20

Z：真空断路器

W：户外

32：设计序号

12：额定电压（KV）

G：隔离开关（选填）

M：永磁机构

630：额定电流（A）

20：额定短路开断电流（KA）

ZW32-12F sectionalizing switch

ZW32-12F分界开关

Operating Environment

1. Altitude: Generally, this equipment is used in places where the altitude is below 2,000 meters.

2. Ambient temperature: It is preferable for the equipment to be used under the temperature ranging from -30 ° C to +40 ° C. Of course, it should not stay at around 40 ° C for a long time. Ideally, the daily average temperature of the operating environment should be lower than 30 ° C, and the annual average temperature should be lower than 20 ° C. The temperature difference within a day should not change too rapidly either, and the daily temperature difference should be lower than 25 ° C.

3. Air humidity: It is advisable that the air humidity in the environment where the equipment is used remains below 95%.

4. Maximum wind speed: The maximum wind speed in the environment where the equipment is used should not exceed 34 m/s, which is commonly referred to as 700 Pa.

5. Ice coating thickness: The specified maximum ice coating thickness for the equipment should not exceed 10 mm.

6. Air environment: In the environment where the equipment is used, the air should not contain any flammable, explosive or corrosive gases, as these may damage the equipment or even cause dangerous situations. Certainly, magnetic dust and impurities also need to be removed before the equipment can be used.

7. Earthquake intensity: The environment where the equipment is used should be a place that will not be subject to impact; otherwise, it is very easy to cause damage to the equipment.

8. Common installation location: Nowadays, the equipment is usually installed at the demarcation points of outdoor overhead lines, and it is a highly desirable device in urban and rural power grids nowadays.

ZW32-12F sectionalizing switch

ZW32-12F分界开关

使用环境

1.海拔高度：一般情况下该设备都是用于一些海拔高度低于2000米的场所下使用。

2.环境温度：设备比较好使用在-30℃到+40℃之间的温度下面，当然也不能长期处于40℃的边缘，比较好的情况就是使用环境的日平均气温低于30℃，年平均气温低于20℃。一天当中的温差也不能变化过快，日温差要低于25℃。

3.空气湿度：设备所使用的环境下的空气湿度比较好是处在百分之九十五以下即可。

4.较大风速：设备所使用的环境下的较大风速不能高于34m/s，也就是我们通常所说的700Pa

5.覆冰厚度：设备规定的较大覆冰厚度应该不能超过10mm。

6.空气环境：设备所使用的环境当中，环境下的空气里面应该要不包含一些具有易燃易爆性或者是带有腐蚀性的气体，这些都是有可能会损坏设备，甚至是造成一些危险情况的。当然向一些带有电磁性的灰尘和杂志也是需要清理之后，才能使用设备。

7.地震强度：设备使用的环境应该是不会遭受到距离撞击的场所，要不然非常容易对设备早成损坏。

8.常用安装位置：如今设备通常安装于户外一些架空线路分界点处，是如今城市和农村电网当中一种非常理想的设备。

ZW32-12F sectionalizing switch

ZW32-12F分界开关

Structural Features:

This circuit breaker consists of three-phase supports and a mechanism box, with a simple and clear structure. The three-phase supports and current transformers adopt outdoor epoxy resin solid or silicone rubber insulation, which has the advantages of being resistant to high and low temperatures, ultraviolet rays, and aging. It employs a miniaturized spring operating mechanism with low energy consumption for opening and closing operations. The output of the mechanism's transmission adopts the spindle sliding method, without torsion loss. There are few transmission components for opening and closing, ensuring high reliability. The current transformers are installed at the outgoing line on the moving end, and the secondary side adopts a plug-in structure, facilitating maintenance and replacement.

1. The equipment can be used in conjunction with a controller to achieve the "four-remote" functions, namely remote control, remote measurement, remote signaling, and remote regulation as commonly known.

2. Since this equipment is quite versatile in terms of energy storage methods, generally it uses electric energy for energy storage and opening/closing operations. Of course, manual energy storage and opening/closing operations are also possible. Besides having options in energy storage methods, it can also be operated in both close and remote manners, so the operation is very flexible and convenient.

ZW32-12F sectionalizing switch

ZW32-12F分界开关

3. The equipment has excellent breaking performance and can continuously break short-circuit currents up to 30 times.

4. As the equipment adopts a brand-new small electric spring mechanism during the design and production process, its energy consumption during operation is very low. That is to say, it can operate stably and reliably with the minimum operating power.

5. Due to its compact structure, the equipment is very flexible in terms of installation methods. It can be installed either by hanging on the pole or by seat mounting.

6. The equipment is very reliable and stable in terms of sealing performance. This is because it adopts some highly mature sealing structures and advanced processing techniques, so there will be no gas leakage inside the equipment.

7. In order to ensure better insulation characteristics, the equipment has been significantly optimized in terms of incoming and outgoing line methods. Coupled with the use of silicone rubber tubes, the insulation distance between the terminals has been significantly increased, thereby enhancing the insulation characteristics of the equipment.

8. As the equipment is equipped with an explosion-proof device on the top of the box, it is very safe in use. It can not only effectively prevent internal faults but also ensure that when internal faults occur, high-temperature gases and splashes will not leak out.

ZW32-12F sectionalizing switch

ZW32-12F分界开关

结构特点：

该开关由三相支住、机构箱组成，结构简单明了，三相支柱及电流互感器采用户外环氧树固体或硅橡胶绝缘，具有耐高低温、耐紫外线、耐老化等优点；采用小型化弹簧操动机构，分合闸能耗低、机构传动输出采用主轴滑动方式，无扭力损耗，分合传动件少，可靠性高；电流互感器安装于动端出线，二次采用插拔结构，维护更换方便。

1.设备可与控制器一起进行配套使用，能够实现四遥功能，也就是我们通常所说的遥控，遥测，遥信，遥控。

2.因为这款设备在储能方式上非常多变，一般情况下是用电动进行储能，分合操作，当然也可以进行手动储能和分合操作，除了在储能方式上有选择以外，在操作上也是可以采取近距离和远距离这两种形式，所以操作非常的灵活，方便。

3.设备在开断性能上非常的优越，能够连续开断短路电流高达30次。

4.设备因为在设计生产的过程中采用了全新的小型电动弹簧机构，所以设备在运行过程中的能耗非常的低，也就是能够使用最少的操作功率，却让设备在运行的时候非常的稳定可靠。

5.因为设备的结构非常紧凑，所以在安装方式上非常的灵活，不仅可以采用柱上吊装的形式，也可以采用座装安装这种方式。

6.设备在密封性能上非常的可靠稳定，这是因为设备采用了一些非常成熟的密封结构，在加工工艺上也是非常的先进的，所以设备内部的气体不会出现泄漏等情况。

7.设备为了保证比较绝缘特性，所以在进出线方式上有明显的优化，在配上使用硅橡胶管，让接线端子之间的绝缘距离有明显的加强，从而达到增强设备的绝缘特性。

8.设备因为在箱体的顶部是配有防爆装置的，所以在使用方面非常的安全，不仅能够有效的防止内部的故障，更是能够保障到内部出现故障的时候，也不会让一些高温气体和飞溅物泄漏出来。

ZW32-12F sectionalizing switch
ZW32-12F分界开关
Mechanical characteristics of the switch 机械开关性能

序号number	project项目	unit单位	numeric value 数值
1	Contact opening distance触头开距	mm	9±1
2	Contact overtravel触头超行程	mm	2±0.5
3	Opening speed分闸速度	m/s	1.2±0.2
4	Closing speed合闸速度	m/s	0.8±0.2
5	Contact closing bounce time触头合闸弹跳时间	ms	≤2
6	Intermediate distance between phases相间中国距离	mm	340±2
7	Three-phase opening and closing has different periods 三相分合闸不同期性	ms	≤2
8	Resistance of conductive loops in each phase 各相导电回路电阻	υΩ	≤80
9	Conductive circuit resistors for each phase with disconnectors 带隔离开关各相导电回路电阻	υΩ	≤150
10	Closing time合闸时间	ms	30-60
11	Opening time (shunt tripping)分闸时间（分励脱扣）	ms	20-40
12	Rated power of energy storage motor储能电动机额定功率	W	40

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

Product Features

1. The disconnector adopts a double-column center-opening and contact rotating-in structure, which has the ability to automatically clean the taps and improves the contact reliability.

2. The contact fingers are made of new materials with high strength, high electrical conductivity and high elasticity. The contact fingers clamp the contacts by relying on their own elastic force, avoiding the vicious cycle that currently occurs due to spring corrosion, heat-induced annealing, resulting in a reduction in the contact clamping force, an increase in contact resistance and aggravated heating of the contacts.

3. The rotating part of the disconnector is designed according to the requirements of maintenance-free operation. The rotating seat is designed as a sealed structure, preventing water vapor, dust and harmful gases from entering, so that the bearings and lithium-based molybdenum disulfide lithium-based grease can always work in a favorable environment. The bearings will never rust, the grease will not leak and will never dry up, ensuring that the operating torque of the disconnector will not increase after long-term operation. A structure combining stainless steel pins and oil-free self-lubricating bearings is adopted, and steel parts are hot-dip galvanized to ensure that the disconnector operates flexibly, easily, reliably and will never rust.

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

产品特点

1. 隔离开关采用双柱中开、触头转入式结构，具有自动清洁抽头的能力，提高了接触可靠性

2. 触指采用高强度、高导电率、高弹性的新型材料制造。依靠触指自身的弹力夹紧触头，避免了目前因弹簧锈蚀、发热退火而引起的触头夹紧力降低，接触电阻增加，触头发热加剧的恶性循环

3. 隔离开关转动部分按免维护的要求设计。转动座设计成密封结构，水汽、尘埃、有害气体无法进入，使轴承、二硫化钼锂基锂基润滑脂永远工作在良好的环境中，轴承用不生锈，润滑脂无法流失，永不干涸，使隔离开关长期运行后的操作力矩不会增加。采用不锈钢轴销与无油自润滑轴承相配合结构，钢制件采用热镀锌，确保隔离开关操作灵活、轻便、可靠、永不生锈

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

Features of Disconnector

1. The entire product is subject to anti-corrosion treatment by the hot-dip galvanizing process. For the parts that require rotation and whose fitting requirements cannot be ensured by hot-dip galvanizing, stainless steel materials are generally adopted. Fasteners with a diameter below M8 are made of stainless steel, while the rest are hot-dip galvanized.

2. The conductive part adopts the soft connection type with copper tubes. The intermediate contact is a self-supporting type contact finger of the "handshake" style. The spring is of the external pressure type with no current passing through. The disconnector has only one contact point in the middle, and the rest are fixedly connected by soft connections.

3. A new contact structure is adopted. One end of the contact piece is fixed to the contact base, and the contact pressure is generated by the deformation of the contact piece and the spring, changing the sliding contact at the end of the contact finger into a fixed contact, thus improving the conductive reliability.

4. The contact finger spring is changed to the external type to avoid current shunting by the spring.

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

5. A magnetic locking plate is added to improve the dynamic and thermal stability performance.

6. The rotating part is equipped with a self-lubricating sleeve, eliminating the need for grease.

7. The main terminal is of the flat plate type. When the current rating is 630A, the surface of the conductive parts is tinned; when the current rating is 1250A - 4000A, the surface of the conductive parts is silver-plated.

8. The upper and lower caps of the porcelain parts are hot-dip galvanized for rust prevention. Different porcelain parts with different creepage distances can be selected according to the pollution levels in different regions. During the production and manufacturing process, positive tolerance control is implemented, and the designed nominal value of the creepage distance is higher than the standard value.

9. The post insulator used for the switch has high strength and density, is stable and reliable. Its formula is made of high-strength porcelain materials, reducing the dispersion of product strength and increasing the tensile strength of the product. In the structural design, a large strength reserve has been set for the product, ensuring its stability and reliability during operation.

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

隔离开关特点

1. 全部采用热镀锌工艺防腐处理，热镀锌不能保证配合要求转动的部件一般均采用不锈钢材料，紧固件M8以下采用不锈钢，其余均采用热镀锌。

2. 导电部分铜管软连接型，中间触头为“握手”式自力型触指，弹簧外压式无电流通过，隔离开关只有中间一个接触点，其余均采用软连接固定联结

3. 采用新的触头结构，将触片一端与触座固定，靠触片变形及弹簧产生接触压力，使触指末端的滑动接触改为固定接触，提高导电可靠性

4. 触指弹簧改为外置式，以避免弹簧分流

5. 增加磁锁板，提高动热稳定性能。

6. 转动部分配有自润滑套，无需润滑脂

7. 主接线端子为平板型。电流等级为630A时，导电部件表面镀锡；电流等级为1250A-4000A时，导电部件表面镀银

8. 瓷件上、下帽采用热镀锌防锈，并根据使地区污秽等级的不同可选用不同爬距的瓷件，在生产制造过程中按正差控制，爬电距离设计时将公称值较标准值设计的高。

9. 开关用支柱绝缘子强度密度大，稳定可靠，配方采用高强度瓷料制造，减少产品强度的分散性，增加了产品的抗拉强度，结构设计时已对产品已有较大的强度预留度，使产品在运行中保证稳定可靠

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

Structure Introduction

1. This product is of the double-column horizontal break and center-opening type, and grounding switches can be attached on one side or both sides. The disconnector with a 90° transmission adopts the CS17 type manual operating mechanism for three-stage linked operation; the disconnector with a 180° transmission adopts the CJ6 type motor operating mechanism or the CS17G type manual operating mechanism for three-stage linked operation; the grounding switch adopts the CS17G type manual operating mechanism for three-stage linked operation.

2. The disconnector is of the double-column V-shaped horizontal opening type. Each single stage consists of parts such as the base, post insulator, outgoing line seat and contacts. There are two supports with an included angle of 50°. The two post insulators are installed on the bearings at both ends of the base at an included angle to each other and are perpendicular to the base. The main conductive parts are respectively installed above the two post insulator porcelain bottles and can rotate approximately 90° along with the post insulator porcelain bottles.

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

3. The soft connection made of red copper braided tape in the outgoing line seat is respectively fastened to the conductive rod and the terminal board. The terminal board is provided for users to connect circuits.

4. The contact fingers in the intermediate contact part are assembled in pairs. The self-supporting type contact fingers are of the rotating-in type, aiming to reduce the wear between the contacts and the contact fingers during opening and closing operations and to improve the service life.

5. When the disconnector is equipped with a grounding switch, the interlocking between the main conductive circuit and the grounding switch is ensured by the sector plate and the arc-shaped plate on the base. When the main conductive circuit is closed, the grounding switch cannot be closed, and when the grounding switch is closed, the main conductive circuit cannot be closed.

GW5 Outdoor High-Voltage Disconnect Switch

GW5型户外高压隔离开关

产品结构

1. 本产品为双柱水平断口中间开启式，可以一侧或两侧附装接地开关。90°传动的隔离开关采用CS17型人力操作机构进行三级联动操作；180°传动的隔离开关采用CJ6型电动机操动机构或CS17G型人力操作机构进行三级联动操作；接地开关采用CS17G型人力操动机构三级联动操作。

2. 隔离开关属双柱V形水平开启式，各单级都由基座、支柱绝缘子、出线座及触头等部分组成由成50°夹角的两个支座，两支柱绝缘子相互夹角地安装在基座两端地轴承上，且与基座垂直。主导电部分分别安装在两支柱绝缘瓷瓶上方，随支柱绝缘瓷瓶作约90e转动。

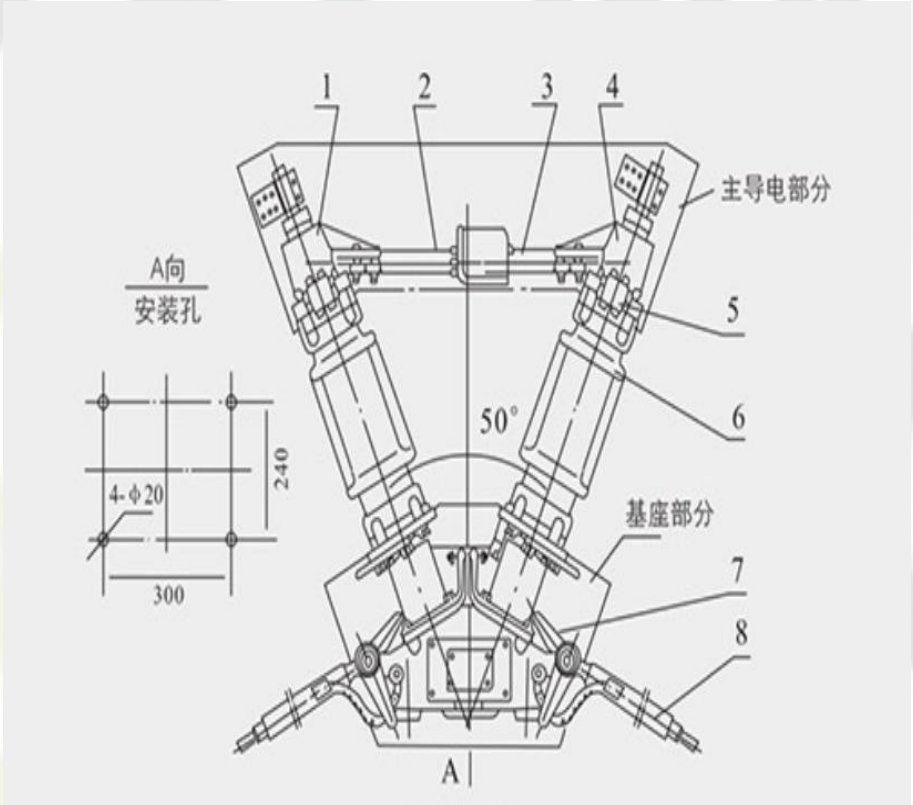
3. 出线座中的紫铜编织带软连接分别紧固在导电杆和接线板上，接线板供用户连接线路之用

4. 中间触头部分的触指成对装配，采用自力型触指其形式为转入式，以减少分、合闸时触头与触指间的磨损，提高使用寿命。

5. 隔离开关附有接地开关时，主导电回路与接地开关的连锁用基座上的扇形板与弧形板保证，在主导电回路合闸时，接地开关不可合闸，接地开关石渣是，主导电回路不可合闸

Technical parameters of GW5-40.5/72.25/126 outdoor high-voltage isolation switch

GW5-40.5/72.25/126型户外高压隔离开关技术参数

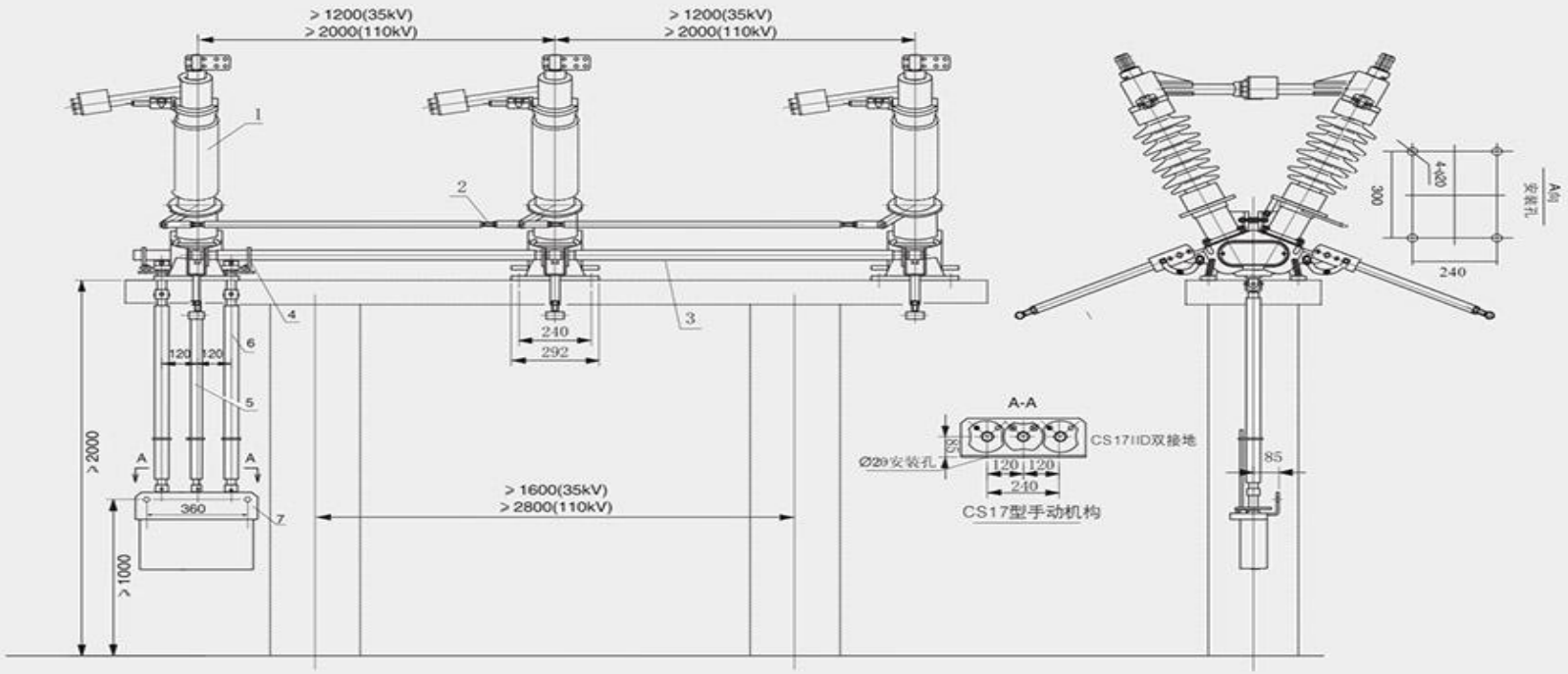


1. Terminal block
2. Main contact
3. Main contact finger
4. Terminal block
5. Grounding contact finger
6. Post insulator
7. Limit plate
8. Grounding blade

1.接线座
2.主触头
3.主触指
4.接线座
5.接地触指
6.支柱绝缘子
7.限位板
8.接地闸刀

Technical parameters of GW5-40.5/72.25/126 outdoor high-voltage isolation switch

GW5-40.5/72.25/126型户外高压隔离开关技术参数



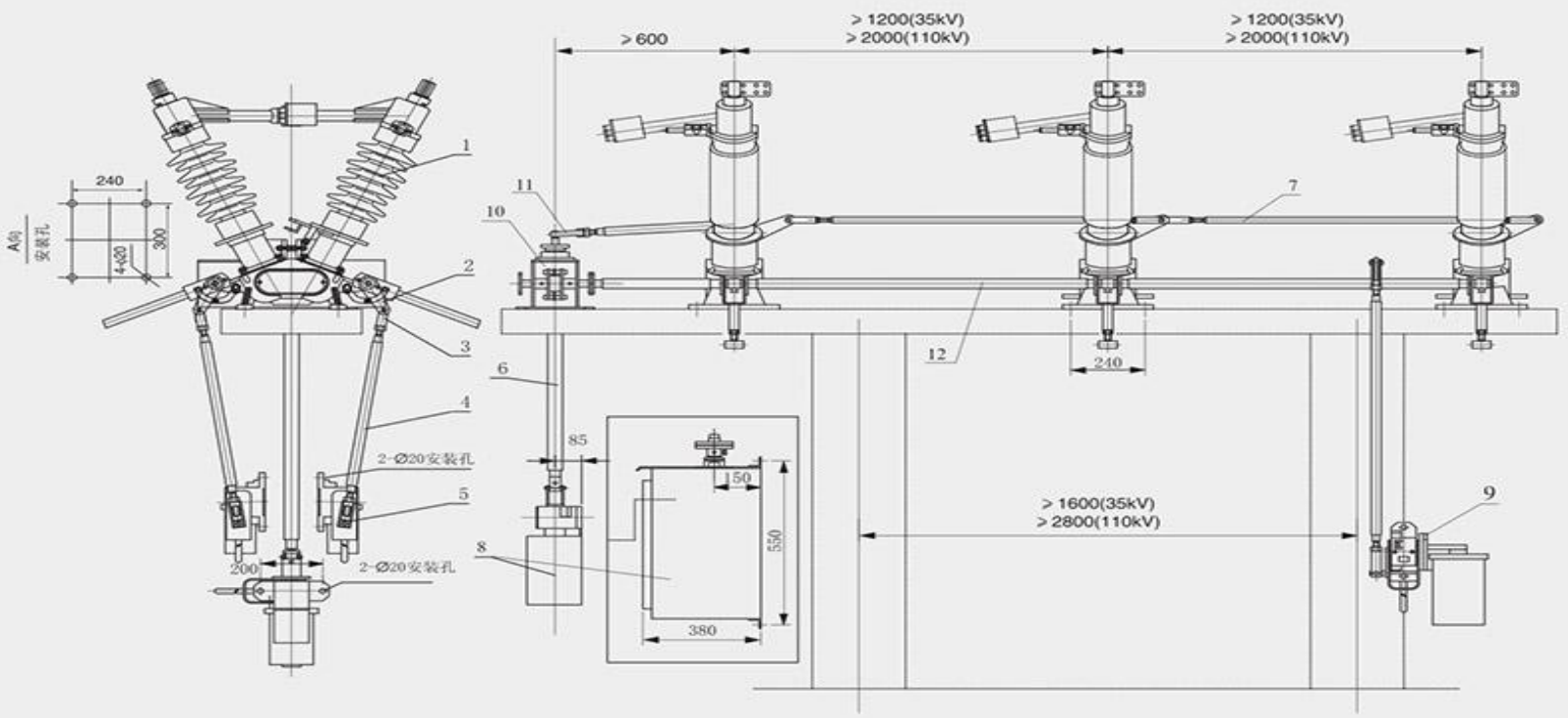
三极开关与CS17G机构的联装(双接地型)

1.开关 2.主刀闸连杆(用户自备) 3.接地闸刀扭杆(用户自备) 4.扭力接头

5.操动扭杆(用户自备) 6.接地闸刀操动扭杆(用户自备) 7. CS17型手动机构

Technical parameters of GW5-40.5/72.25/126 outdoor high-voltage isolation switch

GW5-40.5/72.25/126型户外高压隔离开关技术参数



三极开关与CS17—G机构的联装(双接地型)
1.开关2.拐臂 3.接地刀连接头 4.接地闸刀操动连杆(用户自备) 5.手动机构连接器
6.操动扭杆(用户自备) 7.主闸刀连杆(用户自备) 8. CS17G5型手动机构或CJ6电动机构
9. CS17G2型手动机构 10.传动箱 11.传动箱联结器 12.接地闸刀扭杆(用户自备)
注：操动机构也可安装于两相之间或右端

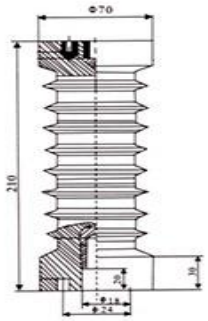
Technical parameters of GW5-40.5/72.25/126 outdoor high-voltage isolation switch

GW5-40.5/72.25/126型户外高压隔离开关技术参数

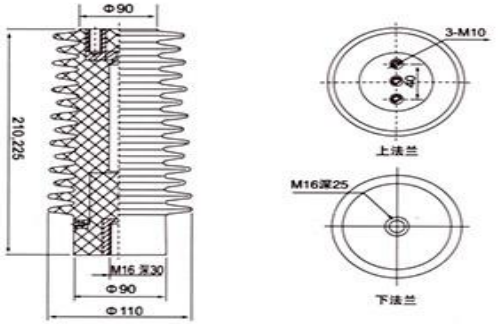
Mane名称			Unit单位	parameter参数		
rated voltage额定电压			KV	40.5	72.5	126
Rated insulation level 额定绝缘水平	1min power frequency withstand voltage1min 工频耐受电压	to the ground 对地	KV	95	140	230
		port端口	KV	115	160	245
	Rated lightning impulse withstand voltage 额定雷电冲击耐受电压	to the ground 对地		185	325	550
		port端口		215	375	630
Rated frequency额定频率			HZ	50		
Current rating额定电流			A	630	1250	1600-2000
Rated short-time withstand current额定短时耐受电流			KA	20	31.5	40
Rated peak withstand current额定峰值耐受电流			KA	50	80	100
Rated short-circuit duration额定短路持续时间			S	4/2		
Rated terminal mechanical load 额定端子机械负荷	Horizontal longitudinal load 水平纵向负荷		N	750	1000	1000
	Horizontal transverse load 水平横向负荷		N	500	750	750
	Vertical force垂直力		N	750	1000	1000
Creepage distance爬电距离			Mm	1013-1256	1813-2248	3150-3906
Mechanical life机械寿命			times次	2000		
Product weight 产品重量	Not grounded不接地		KG	360	500	800
	Single grounding单接地		KG	390	560	900
	Double grounding双接地		KG	430	620	1000

insulator 绝缘子

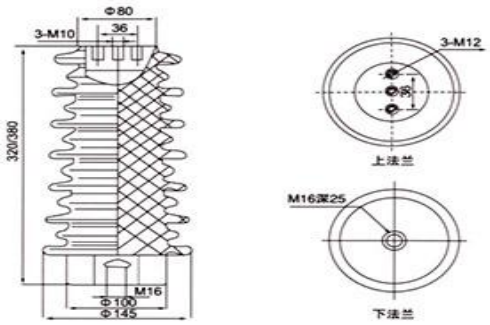
ZJ3-24Q/70x210支柱绝缘子



ZJ-24Q/110x190、210、225支柱绝缘子

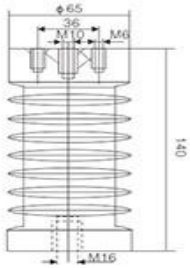


ZJ-35Q/145x320、330、360、380支柱绝缘子

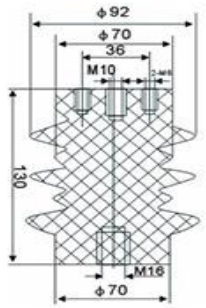


insulator 绝缘子

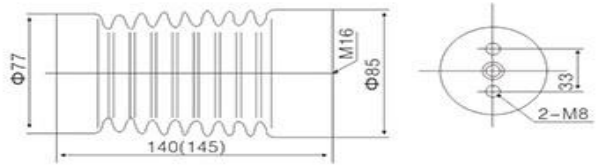
ZJ-10QΦ65×140支柱绝缘子(FN7)



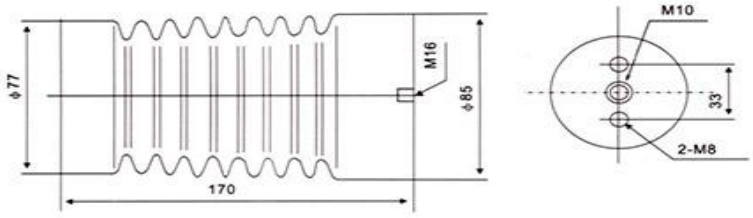
ZJ-10QΦ75×130支柱绝缘子(FN5)



ZJ-10QΦ85×140(145、150)支柱绝缘子

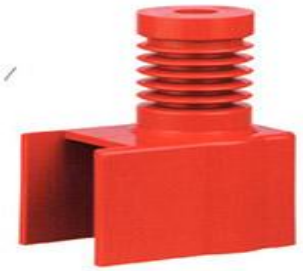


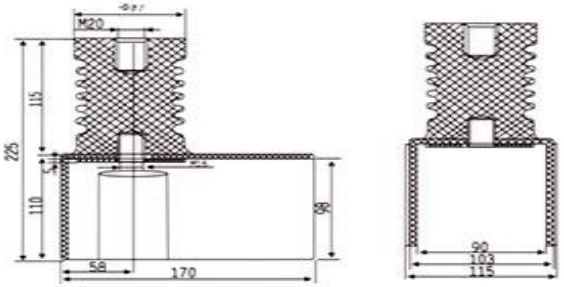
ZJ-10QΦ85×170支柱绝缘子(160、170高)



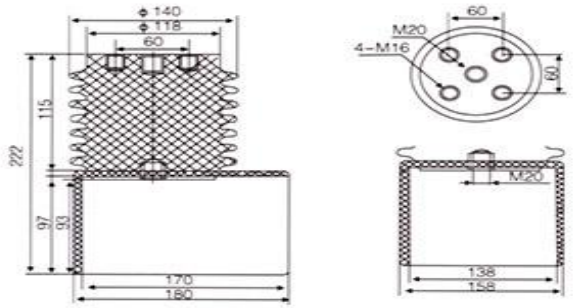
insulator 绝缘子

12KV连体绝缘子630A~1250A(PT车、隔离车专用)

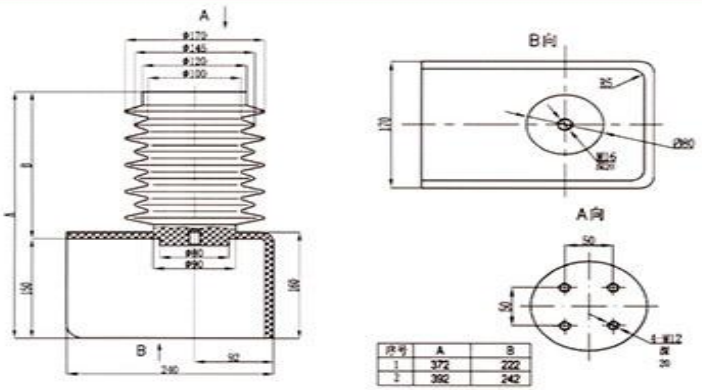




12KV连体绝缘子1600A~3150A(PT车、隔离车专用)

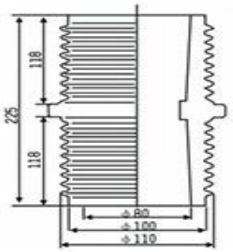


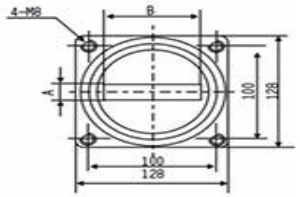
35KV连体绝缘子



insulator 绝缘子

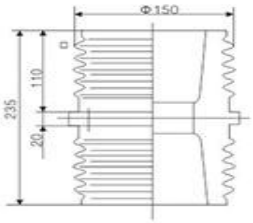
TG4-10Q/128(100×100)套管

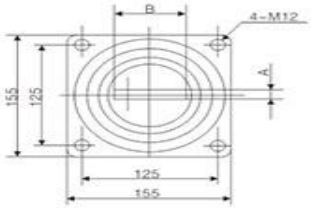




A	6	7	8	12
B	42	52	62	62

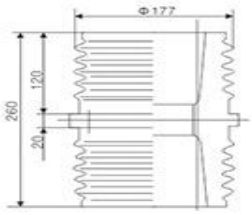
TG1-10Q/210(125×125)套管

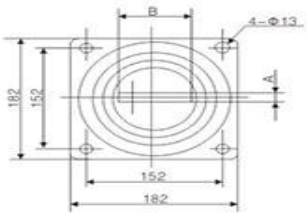




A	8	10	12	12
B	62	82	82	102

TG2-10Q/182(152×152)套管

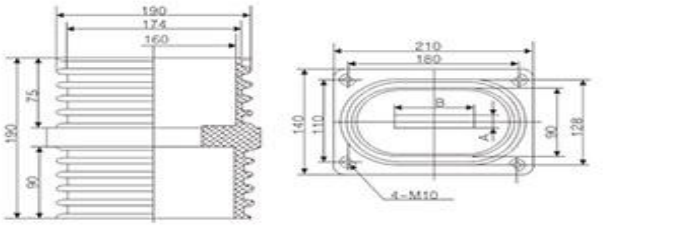




A	8	10	12	2-12
B	62	82	102	102

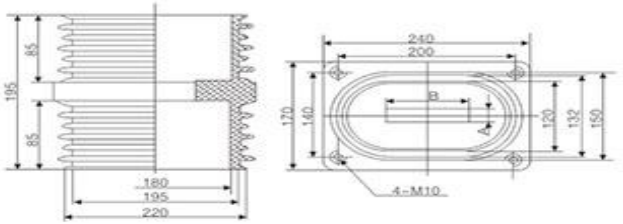
insulator 绝缘子

TG3-10Q/110×180 穿墙套管



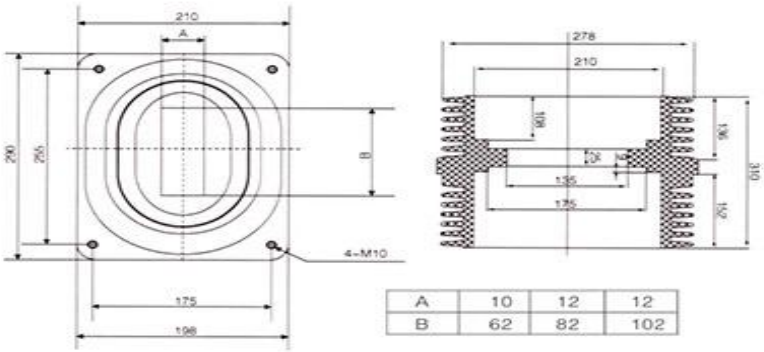
可穿铜排数	单排	单排	单排	单排/双排	单排/双排	单排/双排
A	6	12	8	18	18	18
B	60	66	80	88	108	128

TG3-10Q/140×200穿墙套管



可穿铜排数	单排	单排/双排	单排/双排	单排/双排		
A	18	18	18	18	50	56
B	88	108	128	132	130	136

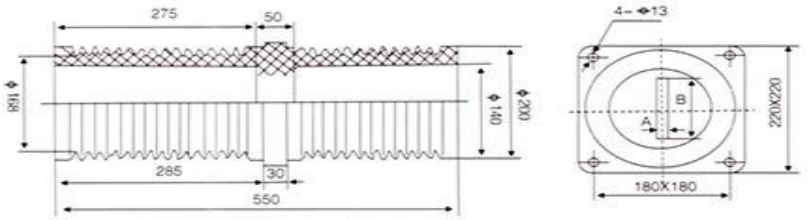
TG3-24Q/175×285穿墙套管



A	10	12	12
B	62	82	102

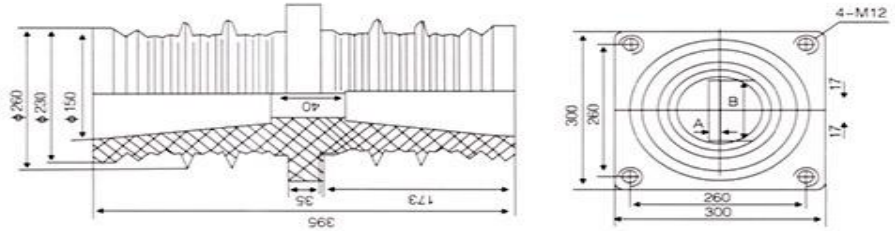
insulator 绝缘子

TG3-35Q/180x180 穿墙套管



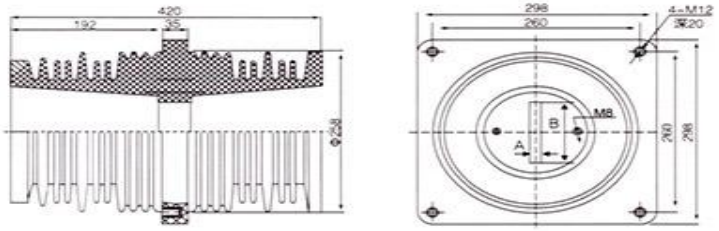
可穿铜排数	单排	单排	单排
A	20	20	20
B	70	90	110

TG3-35Q/260x260 穿墙套管



可穿铜排数	单排	单排/双排	单排/双排
A	20	20	20
B	70	90	110

TG3-35Q/260x260 穿墙套管带屏蔽

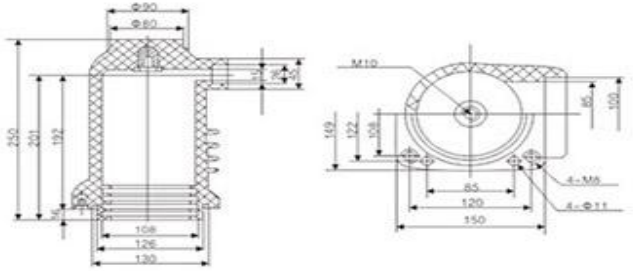


可穿铜排数	单排	单排/双排	单排/双排
A	20	20	20
B	70	90	110

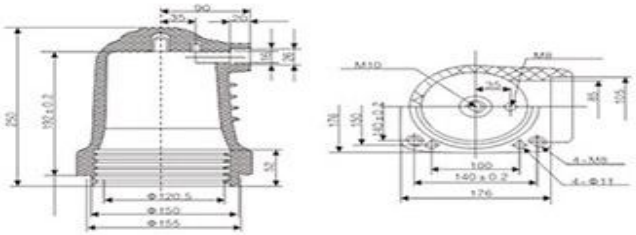
安装孔尺寸
260x260

insulator 绝缘子

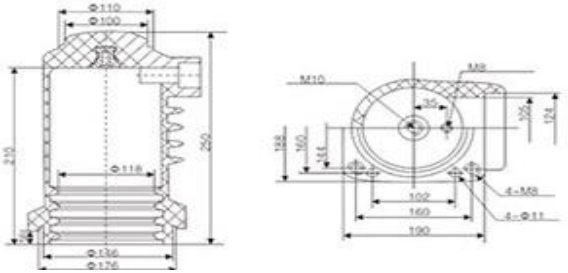
CH3-10Q/150 630~1250A 中置柜触头盒



CH3-10Q/180 1250A 中置柜触头盒

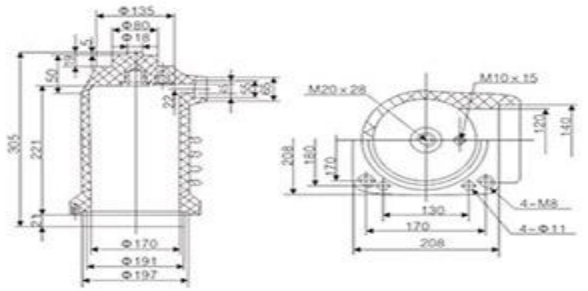


CH3-10Q/190 1600A 中置柜触头盒

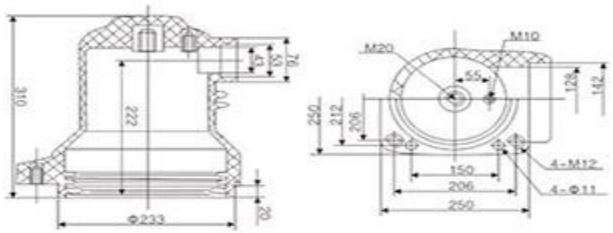


insulator 绝缘子

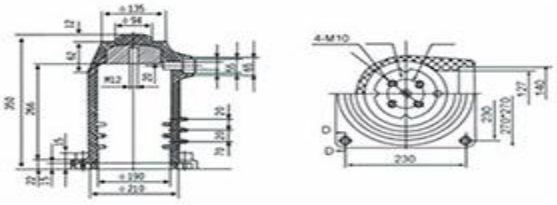
CH3-10Q/208 1600~2000A 中置柜触头盒



CH3-10Q/250 2500~3150A 中置柜触头盒

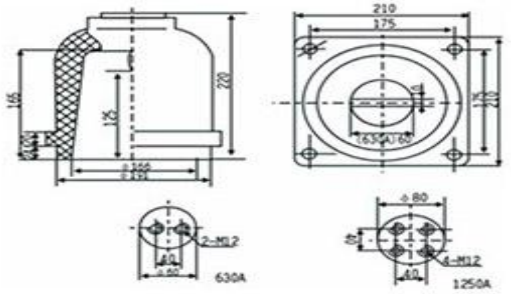


CH3-10Q/230 4000A 中置柜触头盒

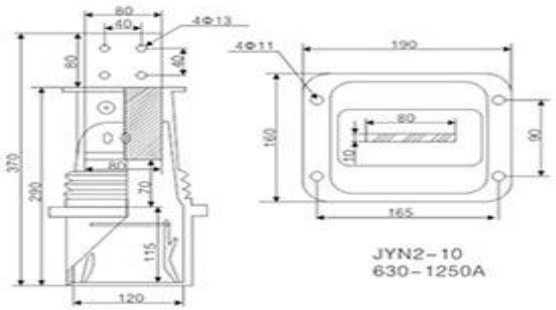


insulator 绝缘子

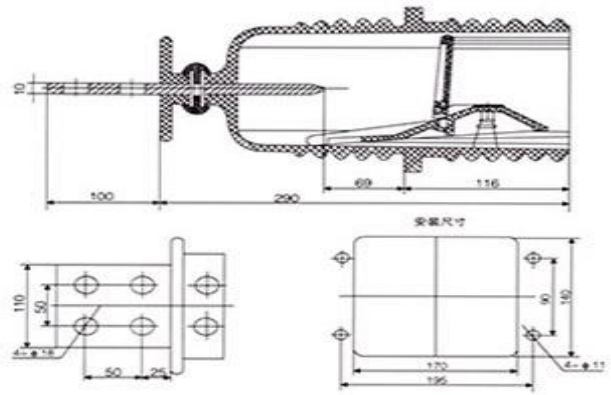
CH3-10Q/210 630(1250)A KYN1触头盒



JYN2-10Q 630A-1250A触头盒

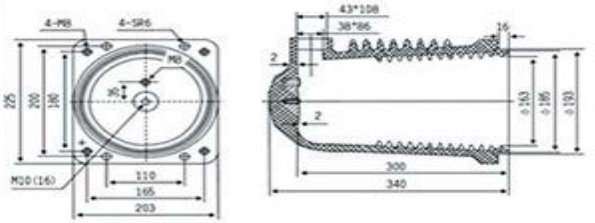


JYN2-10Q 1600A-2000A触头盒

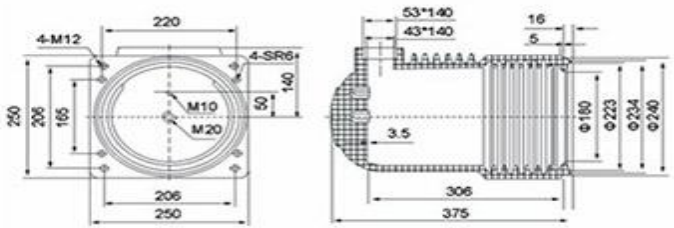


insulator 绝缘子

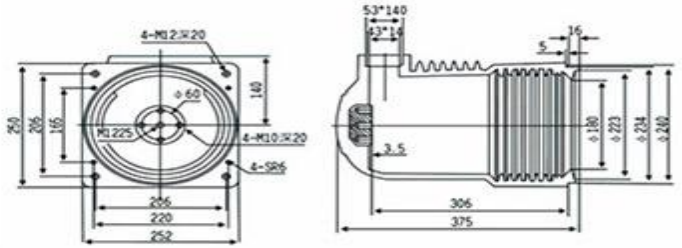
CH3-24KV/225 630~1600A 中置柜触头盒（带屏蔽）



CH3-24KV/250 2000~2500A 中置柜触头盒（带屏蔽）

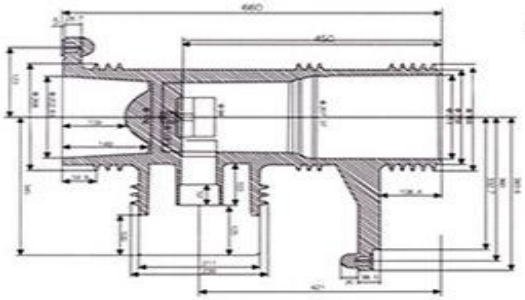


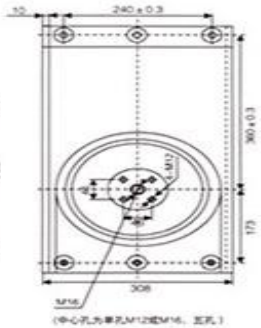
CH3-24KV/252 3150~4000A 中置柜触头盒（带屏蔽）



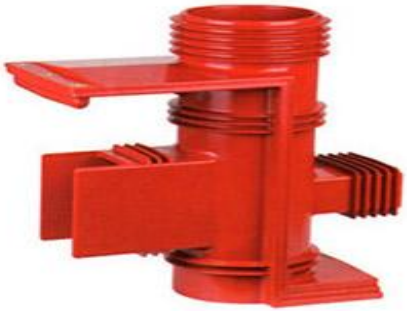
insulator 绝缘子

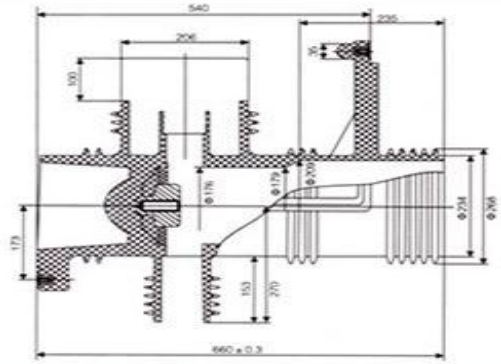
CH3-40.5KV/660-Ⅱ(改进型)带屏蔽触头盒(二通)KYN61

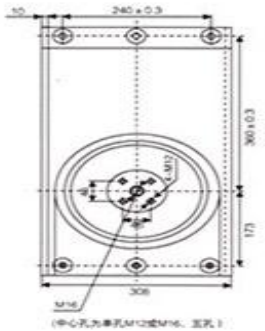




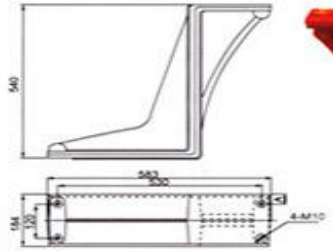
CH3-40.5KV/660-Ⅲ(改进型)带屏蔽触头盒(三通)KYN61



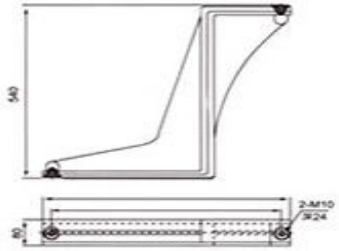




ZB-40.5KV 弯板 (KYN61)



配1.4米开关柜

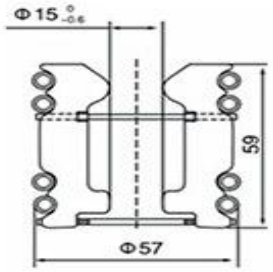


配1.2米开关柜

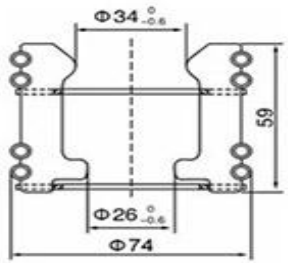
Moving contact series

动动触头系列

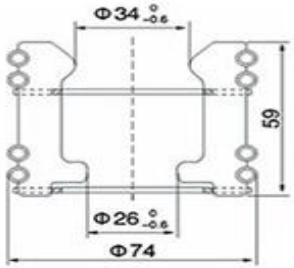
400A(12片)梅花触头



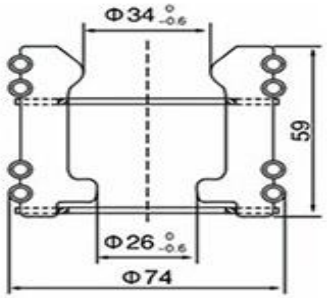
630A(12片)梅花触头



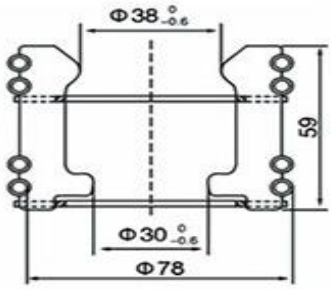
630/1000A(18片)梅花触头



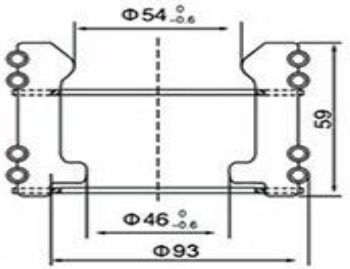
630/1250A(24片)梅花触头



1250A(30片)梅花触头



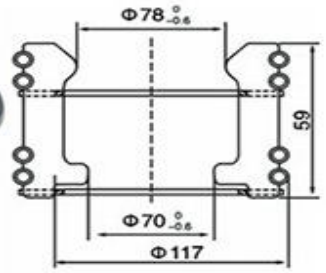
1600A(36片)梅花触头



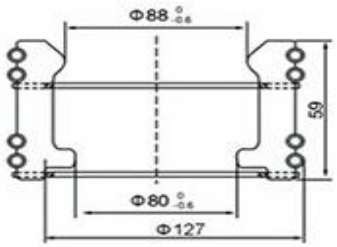
Moving contact series

动触头系列

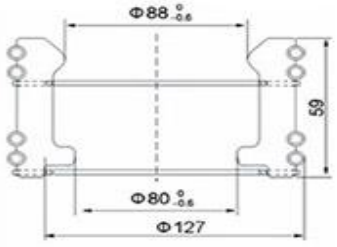
2000A(48片)梅花触头



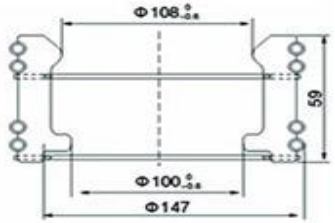
2500(64片)梅花触头(老型)



3150A(64片)梅花触头(老型)

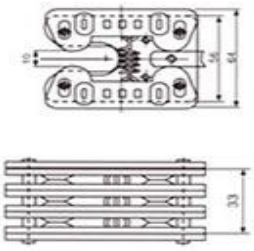


4000A(84片)梅花触头



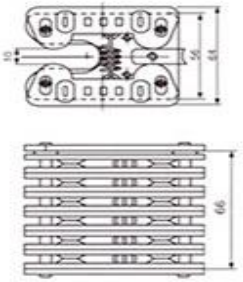
GC8-630A拉黄式扁触头(35KV)

触片数量：12片 接触板厚度：10mm
插入深度：34±2



GC8-1250A拉黄式扁触头(35KV)

触片数量：24片 接触板厚度：10mm
插入深度：34±2

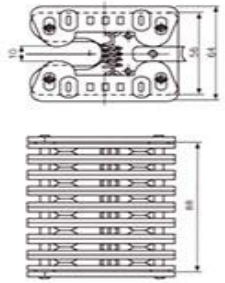


Tension spring flat contact/contact arm series

拉簧式扁触头/触臂系列

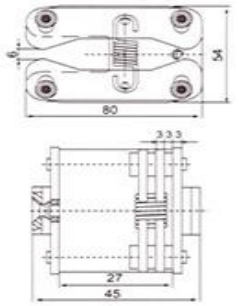
GC8-1600A拉簧式扁触头(35KV)

触片数量：32片 接触板厚度：10mm
插入深度：34±2



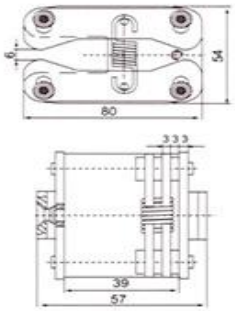
GC6-400A拉簧式扁触头(10KV)

触片数量：8片 接触板厚度：10mm
插入深度：34±2



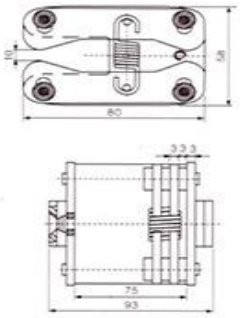
GC6-630A拉簧式扁触头(10KV)

触片数量：12片 接触板厚度：10mm
插入深度：34±2



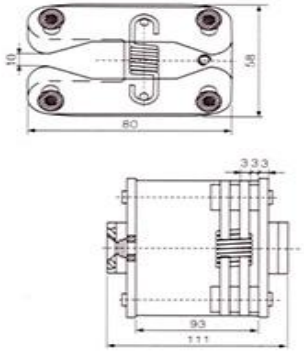
GC6-1250A拉簧式扁触头(10KV)

触片数量：24片 接触板厚度：10mm
插入深度：34±2



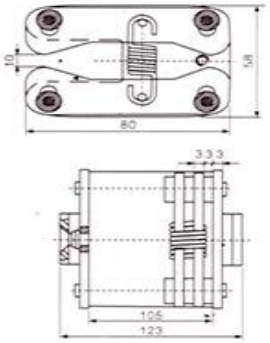
GC6-1600A拉簧式扁触头(10KV)

触片数量：28片 接触板厚度：10mm
插入深度：34±2



GC6-1600A拉簧式扁触头(10KV)

触片数量：32片 接触板厚度：12mm
插入深度：34±2

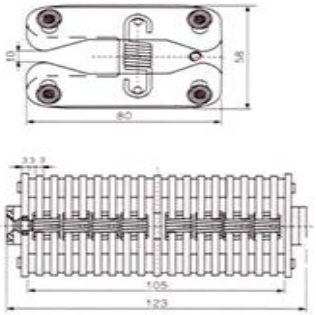


Tension spring flat contact/contact arm series

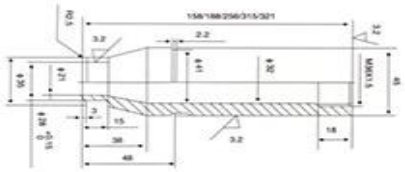
拉簧式扁触头/触臂系列

GC6-2000A拉簧式扁触头(10KV)

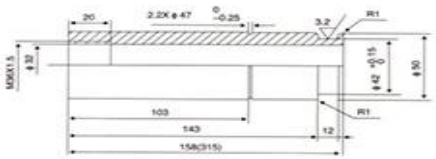
触片数量：32片 接触板厚度：15mm
插入深度：34±2



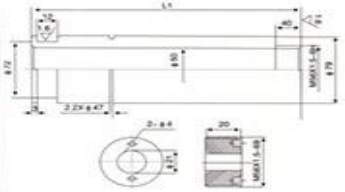
630A Φ44x158~320触臂



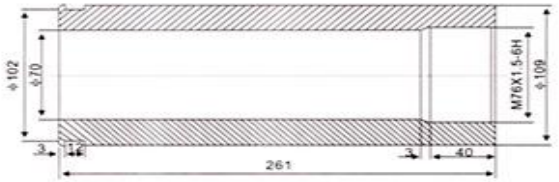
1250A Φ50x158~320触臂



2000A Φ79x182~436.5触臂



3150A触臂

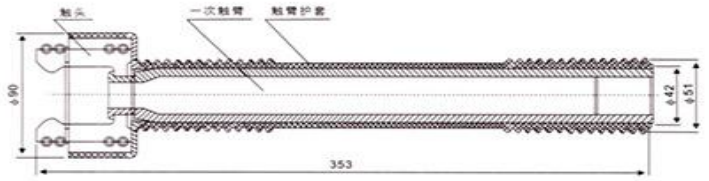


L1
236
255
261
281

Tension spring flat contact/contact arm series

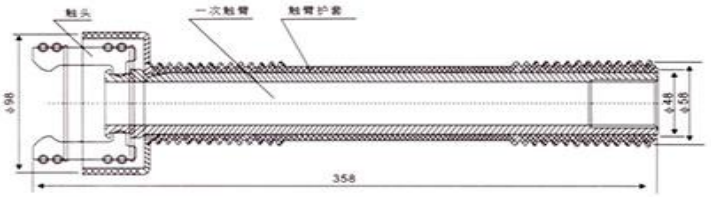
拉簧式扁触头/触臂系列

630A 触臂 材料T2紫铜(PT车、隔离车专用)



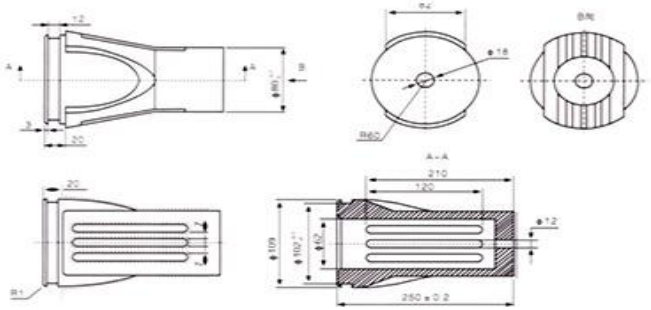
L1
Φ42x261
Φ42x300
Φ42x315
Φ42x321

1250A 触臂 材料T2紫铜(PT车、隔离车专用)



L1
Φ48x258
Φ48x267
Φ48x315
Φ48x321

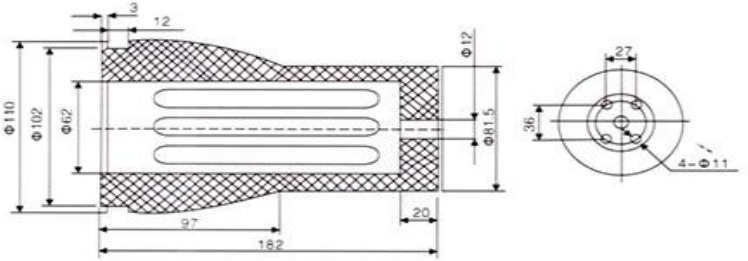
VS1-2000A触臂



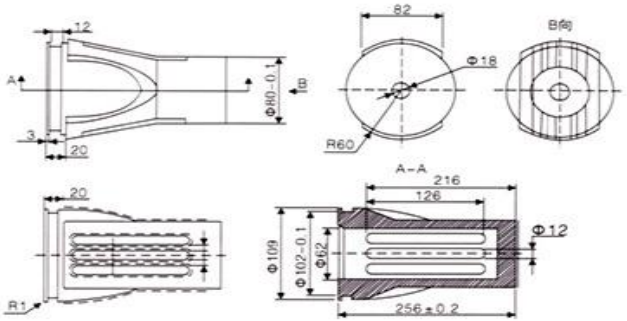
Tension spring flat contact/contact arm series

拉簧式扁触头/触臂系列

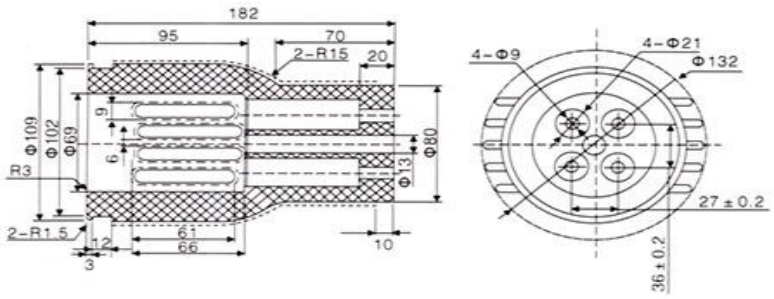
VS1-3150A 触臂 材料：紫铜硫化处理



VS1-3150A 触臂 材料：紫铜硫化处理(注：该型触臂为加长型，适用于大电流隔离车)



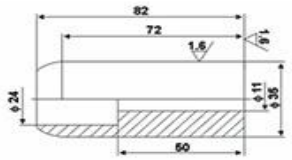
VS1-4000A 触臂 材料：紫铜硫化处理



Static contact series

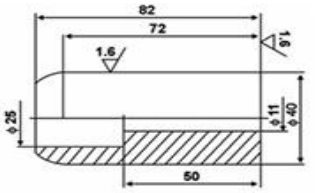
静触头系列

630A Φ35×72(82)静触头 材料：T2紫铜



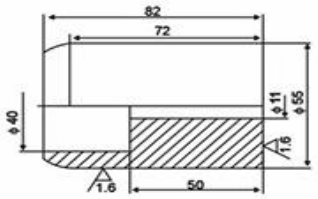
长度：82、72、67、119、145

1250A Φ49×72(82)静触头 材料：T2紫铜

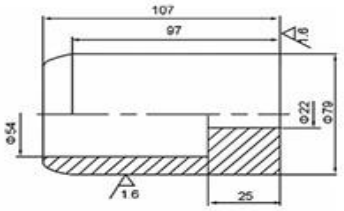


长度：82、72、67、119、145

1600A Φ55×82 静触头

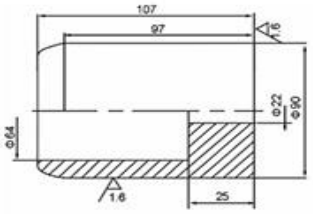


2000A 静触头材料：T2紫铜



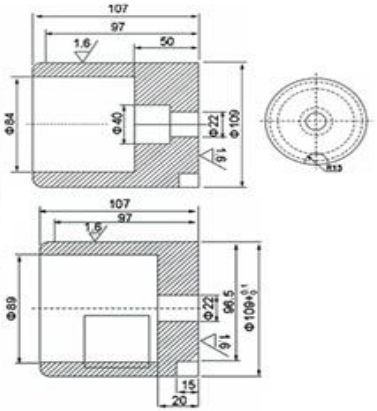
长度：102、109、122、145

2500A 静触头 材料：T2紫铜



长度：102、109、122、145

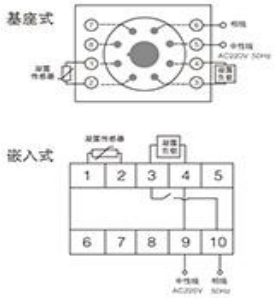
3150A Φ109×107 静触头 材料：T2紫铜



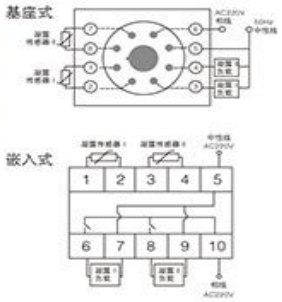
Temperature and humidity controller series

温湿度控制器

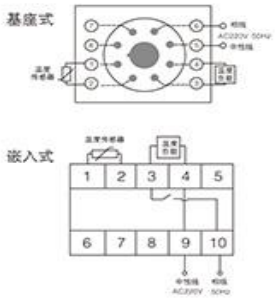
NK(TH)凝露控制器



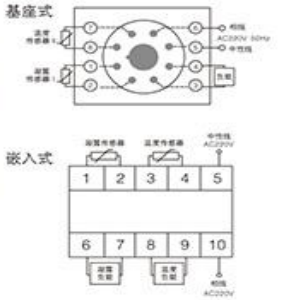
N2K(TH)双路凝露控制器



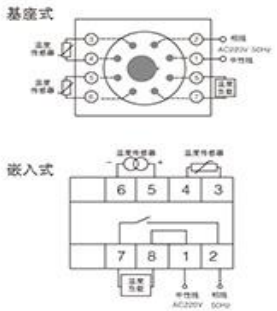
WK-G(TH)温度控制器



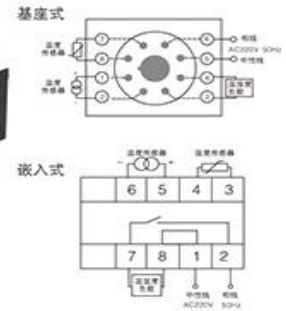
NWK(TH)温度凝露控制器



WSK-G(TH)温湿度控制器



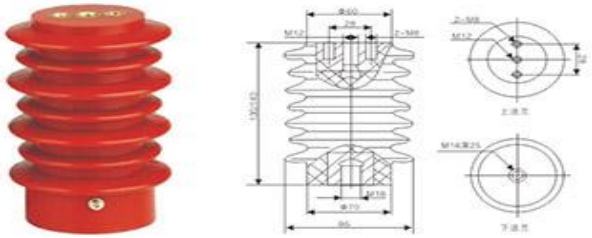
WSK-H(TH)可调式温湿度控制器



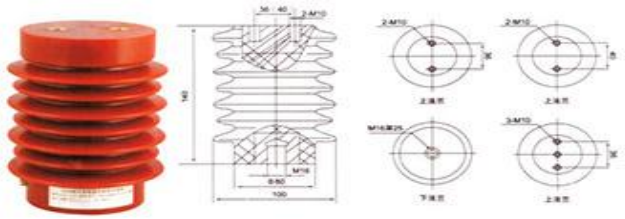
Sensor series

传感器系列

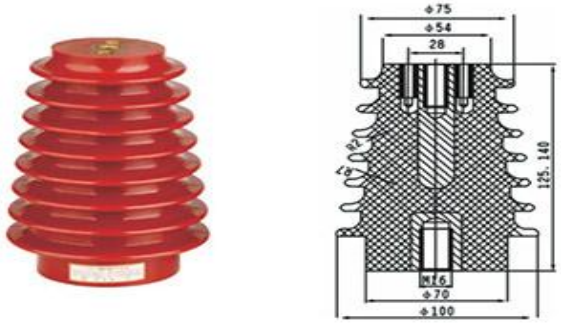
CG5-10Q/95×140(145)户内高压带电显示装置传感器



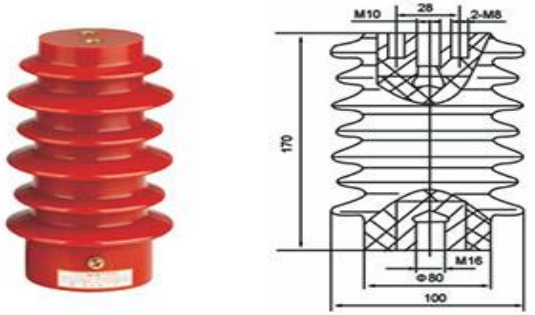
CG5-10Q/100×140户内高压带电显示装置传感器(接地开关专用)



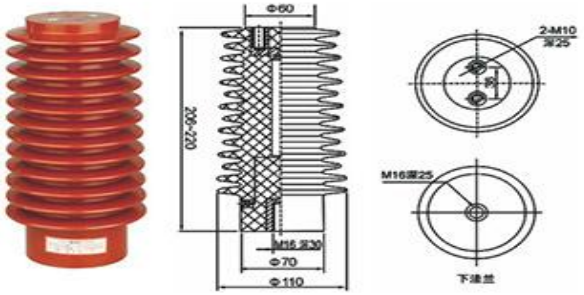
CG5-10Q/100×140户内高压带电显示装置传感器(隔离开关专用)



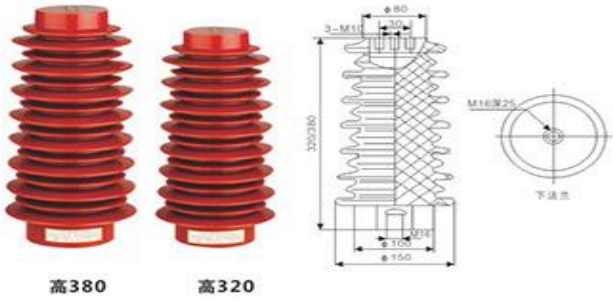
CG3-10Q/85×170户内高压带电显示装置传感器(160、170高原型)



CG5-24Q/110×210、225户内高压带电显示装置传感器



CG5-35Q/145×320、380户内高压带电显示装置传感器



High voltage post insulators

高压支柱绝缘子

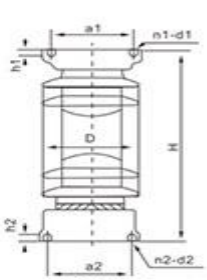


图13

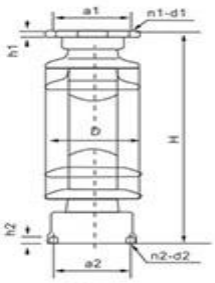


图14

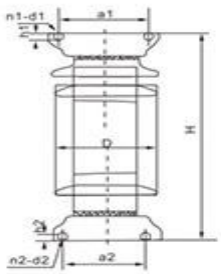


图15

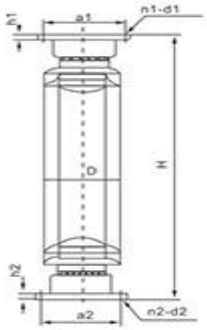


图16

型号	图号	额定电压 kV	弯曲强度 kN	扭转负荷 kN	爬电距离 mm	雷电全波冲击耐受电压 kV	工频干耐受电压 kV	工频湿耐受电压 kV	重量 kg
ZSW-35/4K-2	13	35	4	1.2	875	185	100	80	13
ZSW2-35/4-4	17	35	4	1.8	1260	250	100	90	27
ZS-63/5	12	63	5	2	1160	325	175	140	38
ZS-63/4	12	63	4	2	1104	325	175	140	29
ZS-63/15K	13	63	15	4	1104	325	175	140	61
ZSW-63/4-3	12	63	4	2	2010	325	175	140	50
ZSW-63/8-2	12	63	8	4	1380	325	175	140	39
ZSW-35/4-2	12	35	4	4	875	185	100	80	14
ZSW3-35/4-2	14	35	4	4	875	185	100	80	13.5
ZSW2-35/10-4	17	35	10	2	1260	250	135	90	31.4

型号	总高 H	最大半径 D	干弧距离 mm	伞数	h1	h2	上部安装尺寸 (n1-d1-a1)	下部安装尺寸 (n1-d1-a1)
ZSW-35/4K-2	445	150	345	10	12	14	4-Φ14-Φ140	4-Φ14-Φ140
ZSW2-35/4-4	560	235	405	大5小4	20	14	4-M16-Φ127	4-Φ18-Φ180
ZS-63/5	710	180	565	11	15	20	4-M12-Φ140	4-Φ18-Φ225
ZS-63/4	760	170	627	10	15	14	4-M12-Φ140	4-Φ14-Φ180
ZS-63/15K	840	230	628	9	16	20	4-Φ18-Φ210	8-Φ18-Φ250
ZSW-63/4-3	850	235	705	15	15	20	4-M12-Φ140	4-Φ18-Φ225
ZSW-63/8-2	850	235	705	12	15	20	4-M12-Φ140	4-Φ18-Φ225
ZSW-35/4-2	445	150	350	10	15	14	4-M12-Φ140	4-Φ14-Φ180
ZSW3-35/4-2	445	150	351	10	15	15	4-M12-Φ140	4-M12-Φ140
ZSW2-35/10-4	560	245	405	大5小4	20	14	4-M16-Φ127	4-Φ14-Φ180

High voltage post insulators

高压支柱绝缘子

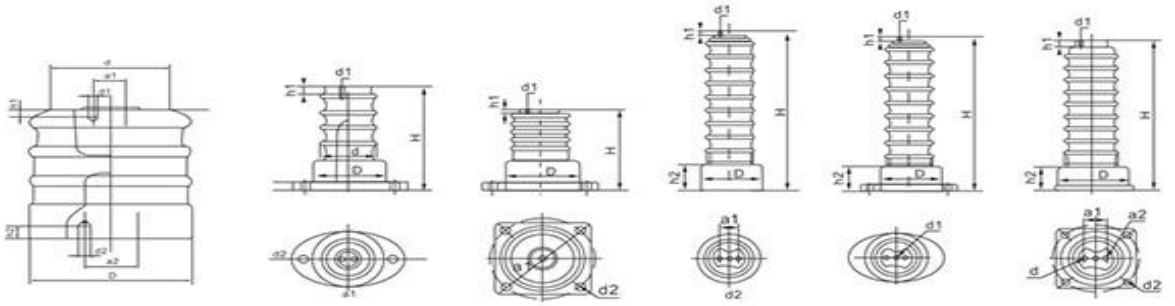


图3 图4 图5 图6 图7 图8

型号	图号	主要尺寸(毫米)									重量(Kg)
		H	D	d	d1	d2	a1	a2	h1	h2	
ZN-6/4	3	100	78	60	2-M8	M12	18	–	18	20	1.25
ZN-10/4	3	120	82	62	M10	M12	–	–	20	20	1.6
ZN-10/8	3	120	100	82	2-M10	M16	24	–	18	25	2.5
ZN-10/8N	3	120	100	82	M16	M16	–	–	18	25	2.5
ZN-10/16	3	170	152	–	2-M12	M20	36	–	18	30	7.3
ZN-20/16	3	230	152	–	2-M12	M20	36	–	18	35	6.2
ZN-20/30	3	230	185	–	2-M16	2-M10	46	46	24	30	14.0
ZL-10/4	4	160	72	–	M10	2-Φ12	130	–	20	–	2.4
ZL-10/8	4	170	86	–	M16	2-Φ14	145	–	25	–	3.5
ZL-10/16	5	185	110	–	M16	4-Φ14	180	–	25	–	5.5
ZL-10/16	5	265	125	–	M16	4-Φ14	210	–	25	–	12.5
ZL-20/30	5	290	160	–	M20	2-Φ16	250	–	25	–	21.3
ZL-35/4Y	6	380	90	–	2-M8	M16	36	–	8	60	6.6
ZL-35/4	7	380	90	–	2-M8	2-Φ14	36	145	8	60	6.2
ZL-35/8	8	400	110	–	2-M10	4-Φ14	46	180	12	66	10.7
ZLA-35GY	7	445	105	–	2-M8	2-Φ12	36	–	8	70	10.4
ZLB-35GY	8	450	125	–	2-M8	4-Φ14	36	–	12	66	11.4
ZLD-10F	5	215	115	–	4-M12	4-Φ15	–	–	–	–	9.7

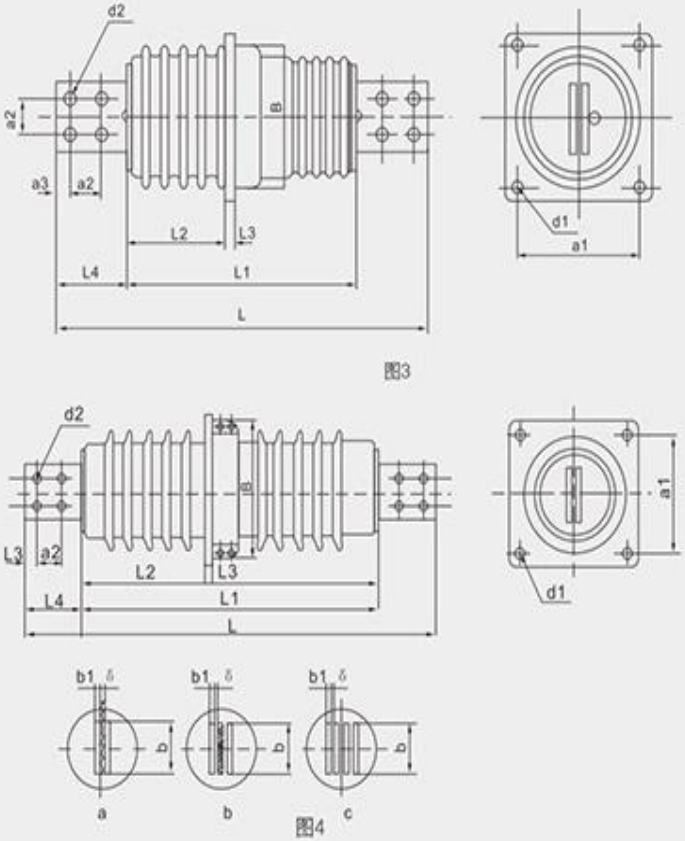
High-pressure ceramic wall sleeve

高压陶瓷穿墙套管

Model 型号	Rated voltage 额定电压 KV	Current rating 额定电流A	5s short-time current 5s 短时电流 KA	The nominal creepage distance of the outdoor end 户外端公称爬电距离mm	The power frequency voltage KV is not less than 工频电压KV不小于				BIL	Bending destroys the load 弯曲破坏负荷	weight 重量
					Dry tolerant 干耐受	Moisture tolerant 湿耐受	Breakd own 击穿	Corona is visible 可见电晕			
CWWL-10/2000	10	2000	40	230	47	30	75	-	80	8	17
CWWL-10/3150	10	3150	60	230	47	30	75	-	80	8	20
CWWL-10/4000	10	4000	80	260	47	30	75	-	80	16	30
Cww -20/2000	20	2000	40	400	75	50	120	14.8	125	8	29
CWW-20/3150	20	3150	60	400	75	50	120	14.8	125	8	32.7
CWB-10/400	10	400	7.2	/	47	34	75	/	80		
CWB-10/600	10	600	12	/	47	34	75	/	80		
CWB-10/1000	10	1000	20	/	47	34	75	/	80		
CWB-10/1500	10	1500	30	/	47	34	75	/	80		
18KW/1600A	18	1600	30	/	75	50	120	/	125		
18KW/6300A	18	6300	30	/	75	50	120	/	125		
CWB-35/400	35	400	7.2	595	110	80	176	25.8	195		
CWB-35/600	35	600	12	595	110	80	176	25.5	195		
CWB-35/1000	35	1000	20	595	110	80	176	25.8	195		
CWB-35/1500	35	1500	30	595	110	80	176	25.8	195		
CWWB-35/2000	35	2000	40	810	110	80	176	25.8	195		
CWWB2-35/2000	35	2000	40	810	110	80	176	25.8	195		
CB-6/600	6	600	12	/	36	/	58	/	60		
CB-10/200	10	200	3.8	/	47	/	75	/	80		
CB-10/400	10	400	7.2	/	47	/	75	/	80		
CB-10/600	10	600	12	/	47	/	75	/	80		
CB-10/1000	10	1000	20	/	47	/	75	/	80		
CB-10/1500	10	1500	30	/	47	/	75	/	80		

High-pressure ceramic wall sleeve

高压陶瓷穿墙套管



L	L1	L2	L3	L4	B	d1	d2	a1	a2	a3	b	b1	δ
600	365	158	14	115	200	4-ϕ14	4-ϕ18	200	50	25	100	10	10
600	365	158	14	115	200	4-ϕ14	4-ϕ18	200	50	25	100	12	10~12
670	388	165	18	135	280	4-ϕ18	4-ϕ20	260	60	30	120	12	10~12
835	590	255	14	115	250	4-ϕ15	4-ϕ18	220	50	25	100	10	10
835	590	255	14	115	250	4-ϕ15	4-ϕ18	220	50	25	100	12	10~12

High-pressure ceramic wall sleeve

高压陶瓷穿墙套管

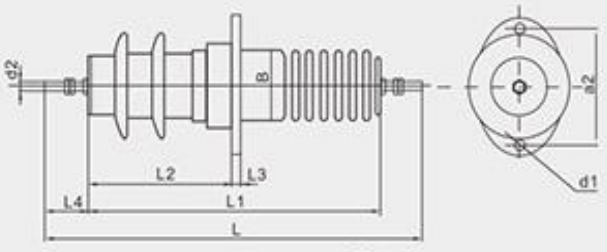


图5

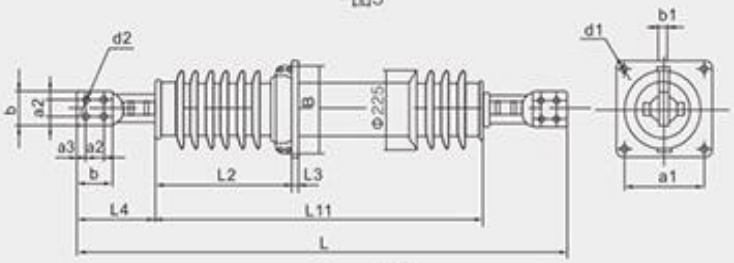


图6

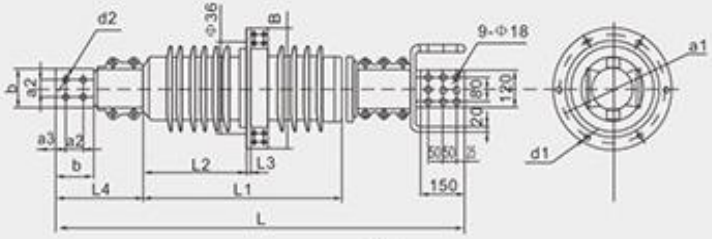


图7

L	L1	L2	L3	L4	B	d1	d2	a1	a2	a3	b	b1	δ
580	450	222	12	60	108	2-φ18	M14x1.5	175	-	-	-	-	-
580	450	222	12	60	108	2-φ18	M20x1.5	175	-	-	-	-	-
600	450	222	12	70	108	2-φ18	M30x2	175	-	-	-	-	-
610	450	222	12	75	108	2-φ18	M39x3	175	-	-	-	-	-
1450	975	408	20	235	250	4-φ15	4-φ18	230	50	25	100	-	-
1405	688	656	18	300	400	6-φ18	4-φ18	360	60	32.5	120	-	-

High-pressure ceramic wall sleeve

高压陶瓷穿墙套管

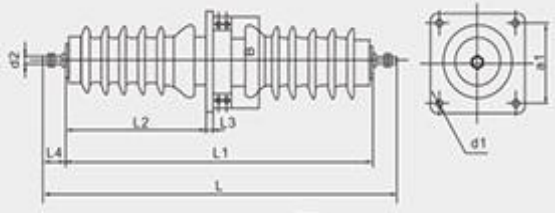


图8

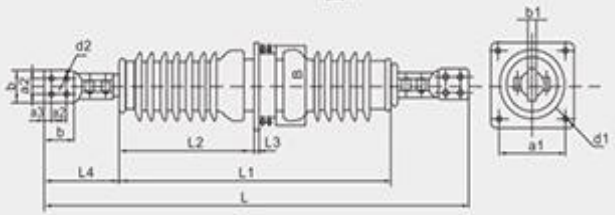


图9

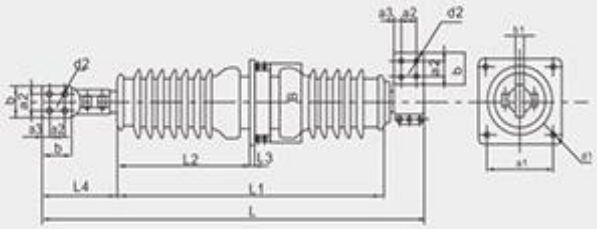


图10

L	L1	L2	L3	L4	B	d1	d2	a1	a2	a3	b	b1	δ
940	815	372	16	-	225	4-φ15	M14x1.5	200	-	-	-	-	-
940	815	372	16	-	225	4-φ15	M25x1.5	200	-	-	-	-	-
980	815	378	16	75	225	4-φ15	M30x2	200	-	-	-	-	-
990	815	378	16	78	225	4-φ15	M39x3	200	-	-	-	-	-
1400	882	433	20	-	250	4-φ15	4-φ18	220	50	25	100	25	-
1270	882	433	20	-	250	4-φ15	4-φ18	220	50	25	100	25	-

GW1-12/630A outdoor high-voltage disconnector

GW1-12/630A户外高压隔离开关

1. Product Overview:

GW1 outdoor high-voltage isolation knife switch GW1-12/630A (hereinafter referred to as the isolation switch) is suitable for installation on outdoor 12KV lines, for the line to divide and combine power when there is voltage and no load.

This disconnector fully takes into account the different needs of users, and is divided into two forms: with grounding knife and without grounding knife. The switch with grounding knife and CS□ manual mechanism can prevent misoperation such as connecting the grounding wire with electricity and closing the isolation switch with the grounding wire, and the operator does not have to hang the grounding wire. There are two kinds of disconnectors: ordinary type and anti-fouling type. Among them, the anti-fouling disconnector can stay in the requirements of more seriously polluted areas, and can effectively solve the problem of pollution flashover in the operation of the disconnector. The products meet the requirements of GB1985 and GB/T11022 standards.

2. Conditions of use

Environmental conditions of use:

1. THE ALTITUDE DOES NOT EXCEED 1000M;
2. The upper limit of ambient temperature is 40°C, and the lower limit is -25°C;
3. Places where there is no conductive or chemical gas and vapor;
4. No fire, explosion hazard, serious pollution place;
5. Places that are not subject to serious vibration or impact (such as next to electric picks and dredgers).

GW1-12/630A outdoor high-voltage disconnector

GW1-12/630A户外高压隔离开关

一、产品概述：

GW1型户外高压隔离刀闸GW1-12/630A（以下简称隔离开关）适用于装在户外12KV线路上，供线路在有电压，无负载时分合电之用。

本隔离开关充分考虑到用户的不同需要，分有带接地刀和不带接地刀两种形式。带接地刀的开关、配用CS□型手动机构，可防止带电挂接地线和带接地线关合隔离开关等误操作，操作人员也不必另挂接地线。本隔离开关有普通型和防污型两种。其中防污型隔离开关能滞较严重污秽地区之要求，可有效地解决隔离开关在运行中出现污闪问题。产品符合GB1985及GB/T11022等标准要求。

二、使用条件

使用环境条件：

1、 海拔不超过1000M；

2、 环境温度上限为40℃，下限-25℃

3、 无导电或起化学作用气体和蒸汽的场所；

4、 无火灾、爆炸危险、严重污秽的场所；

5、 不受严重震动或冲击情况（如在电镐、挖泥机旁）的场所。

GW1-12/630A outdoor high-voltage disconnector

GW1-12/630A户外高压隔离开关

Product structure Main structure description:

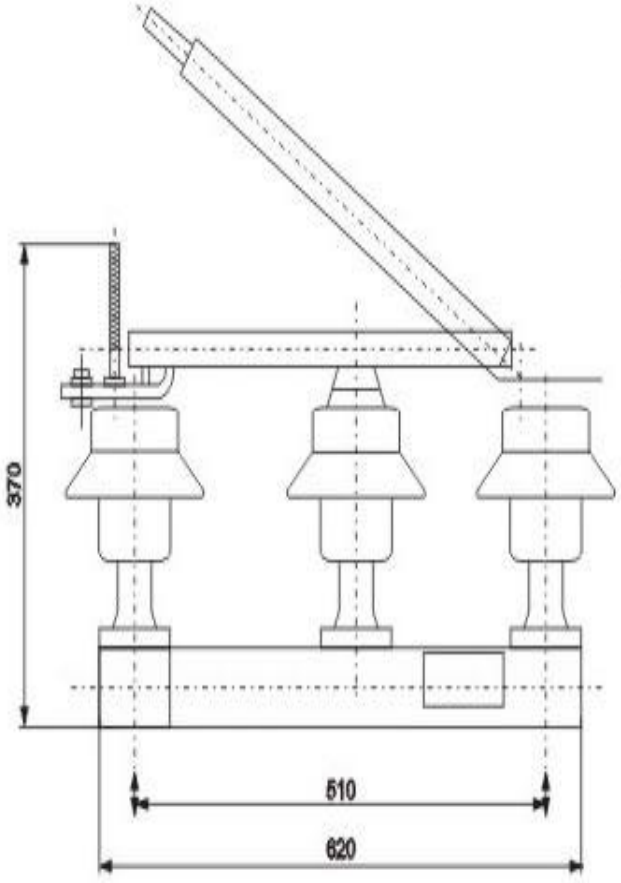
The disconnector is composed of three single-pole switches. Each single-pole disconnector has the same components, including the base, pillars and operating insulators, front and rear static contacts, brake blades and arc angles, etc. According to the needs of users, those with grounding knives are equipped with CS□ operating mechanism, and those without grounding generators are equipped with CS8-5 operating mechanism. The product has a large opening distance, and the operation is simple and reliable. When there is no circuit breaker on the line or the circuit breaker fails, the disconnector allows the disconnector to be opened and closed in the following cases; Divide and close the charging current on the bus equipment; The no-load current of the power transformer is divided (the capacity of the transformer does not exceed 750KVA).

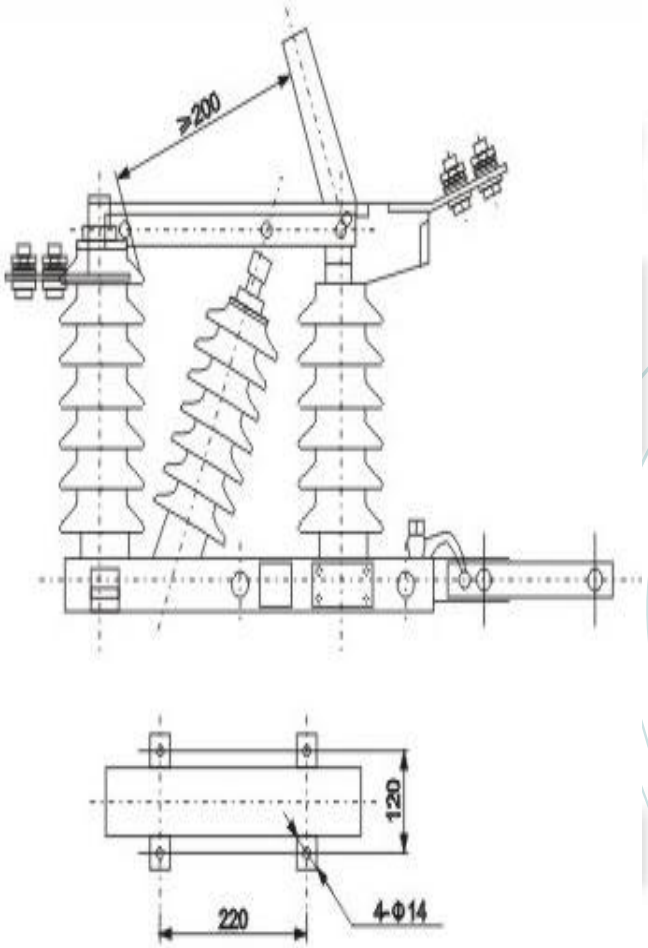
产品结构 主要结构说明：

隔离开关由三个单极开关组成。每个单极隔离开关都具有相同的组成部位，包括底座、支柱及操作绝缘子、前后静触头、闸刀及弧角等。根据用户需要，带接地刀者配用CS□操动机构，不带接地发者，配用CS8-5型操动机构。产品开距大，操作简便可靠。当线路上无断路器或断路器发生故障时，隔离开关允许在下列情况下进行分合； 对母线设备上的充电电流进行分合； 对电力变压器的空载电流进行合分（此时变压器的容量不超过750KVA）。

GW1-12/630A outdoor high-voltage disconnector

GW1-12/630A户外高压隔离开关





GW1-12/630A outdoor high-voltage disconnector
GW1-12/630A户外高压隔离开关

Projects项 目			Units单 位	Parameters参 数			
Rated voltage额定电压			kV	10	15		20
Operating voltage工作电压			kV	12	17.5		23
Rated absolutely edge level 额定绝缘水平	1min power frequency withstand voltage (RMS) 1min工频耐受电压(有效值)	to the ground 对地	kV	38	40		50
		port 端口	kV	42	47		60
	Rated lightning impulse withstand voltage (peak) 额定雷电冲击耐受电压(峰值)	to the ground 对地	kV	75	105		125
		port 端口	kV	85	120		145
Rated frequency额定频率			Hz	50			
Current rating额定电流			A	200	400	630	1250
4 sec thermal stabilizer (rms) 4秒热稳定电流 （有效值）			kA	6.3	12.5	20	31.5
Dynamic Stabilization Current (Peak) 动稳定电流 （峰值）			kA	16	31.5	50	80
Matching mechanism 配用机构			CS8-1, CS8-D, CD8-5 rainproof manual mechanism or CX6 electric actuator CS8-1、CS8-D、CD8-5防雨型手动机构 或CX6电动操动机构				

Photovoltaic energy storage system

光伏储能系统

1. **Definition**

- A photovoltaic energy storage system is a system that combines photovoltaic power generation with energy storage technology. It mainly consists of photovoltaic modules (solar panels), energy storage devices (such as storage batteries), power conversion systems (PCS, including inverters, etc.), control systems, and other auxiliary equipment. Photovoltaic modules are responsible for converting solar energy into direct current. Energy storage devices are used to store electrical energy. The power conversion system can convert direct current into alternating current to meet the needs of different loads, while the control system monitors and manages the operation of the entire system.

2. **Working Principle**

- **Photovoltaic Power Generation Stage**: When the semiconductor materials (such as silicon) in solar panels are exposed to light, the internal electrons will undergo transitions, thus generating direct current. This process is based on the photoelectric effect. After the energy of photons is absorbed by the semiconductor, electrons are made to jump from the valence band to the conduction band, creating a potential difference and then generating current.
- **Energy Storage Stage**: When there is surplus electrical energy generated by photovoltaic power generation, the direct current is converted through the PCS into a form of direct current suitable for charging energy storage devices and then stored in energy storage equipment such as storage batteries. Energy storage devices can be of different types, such as lead-acid batteries, lithium-ion batteries, and flow batteries. For example, when a lithium-ion battery is being charged, lithium ions are extracted from the positive electrode material and migrate through the electrolyte to the negative electrode material, realizing the chemical storage of electrical energy.
- **Discharge Stage**: When there is insufficient light (such as at night or on cloudy days) or during peak electricity demand periods, the electrical energy in the energy storage devices is inverted into alternating current through the PCS to supply power to loads such as households and enterprises.

Photovoltaic energy storage system

光伏储能系统

3. **Main Components**

- **Photovoltaic Modules**:

  - There are various types, including monocrystalline silicon, polycrystalline silicon, and thin-film solar panels. Monocrystalline silicon panels have a relatively high photoelectric conversion efficiency, generally reaching around 15% - 24%. Polycrystalline silicon panels have a slightly lower efficiency, around 13% - 18%. Although thin-film solar panels have a relatively low efficiency (usually 7% - 13%), they have characteristics such as being bendable and lightweight, making them suitable for some special application scenarios.

  - There are also multiple installation methods for photovoltaic modules, such as ground installation, roof installation, and building-integrated installation. Ground installation is suitable for large-scale photovoltaic power generation stations and can make full use of land resources. Roof installation can utilize the roof space of buildings without occupying additional land and is suitable for distributed photovoltaic power generation systems. Building-integrated installation combines solar panels with the exterior design of buildings, making the building itself a power generation unit.

- **Energy Storage Devices:**

  - Lead-acid storage batteries are relatively traditional energy storage equipment. They have a relatively low price and mature technology. However, their energy density is low and their cycle life is short. Lithium-ion batteries have a high energy density, a long cycle life, and a low self-discharge rate, but their cost is relatively high. Flow batteries have the advantages of large capacity and long life, but their systems are complex and their volumes are large.

- **Power Conversion System (PCS):**

  - The PCS is a key device that connects photovoltaic modules, energy storage devices, and the power grid (or loads). It mainly includes inverters and DC-DC converters. Inverters convert direct current into alternating current so that electrical energy can meet the use requirements of AC loads such as household appliances. DC-DC converters are used to adjust the voltage level of direct current to adapt to the charging requirements of different devices and energy storage devices.

Photovoltaic energy storage system

光伏储能系统

- **Control Systems**:
  - Control systems can conduct real-time monitoring of the power generation power of photovoltaic modules, the charging and discharging states of energy storage devices, and the electricity consumption situations of loads. They can optimize the management of the system according to set strategies, such as timed charging and discharging, and controlling charging and discharging according to peak and valley electricity prices. For example, during the period of low electricity prices, the control system can give priority to charging energy storage devices, while during the period of high electricity prices, it can make energy storage devices discharge to save electricity costs.

4. **Application Scenarios**

- **Household Distributed Power Generation**:
  - Photovoltaic energy storage systems can be installed on the roofs of residential houses to provide power for households. When there is sufficient sunlight during the day, in addition to meeting the household's immediate electricity demand, photovoltaic power generation can also store the surplus electrical energy. At night, the energy storage devices release electrical energy to supply power to electrical equipment such as household lighting, televisions, and refrigerators, reducing dependence on the power grid and simultaneously saving electricity bills.

- **Off-grid Photovoltaic Power Generation Systems**:
  - In some remote areas, such as mountainous areas and islands, the power grid coverage is incomplete. Photovoltaic energy storage systems can independently provide power for local residential areas, small base stations, etc. Through reasonable configuration of the capacities of photovoltaic modules and energy storage devices, this off-grid system can achieve long-term and stable power supply.

- **Industrial and Commercial Applications**:
  - For industrial and commercial places such as factories and shopping malls, photovoltaic energy storage systems can be used for peak shaving and valley filling. During peak electricity consumption periods, energy storage devices discharge to relieve the power supply pressure on the power grid. During low electricity price periods, they store low-priced electrical energy to reduce electricity costs. Meanwhile, for some enterprises with high requirements for the reliability of power supply, such as data centers, using photovoltaic energy storage systems as backup power sources can improve the stability and continuity of power supply.

Photovoltaic energy storage system

光伏储能系统

5. **Advantages and Challenges**

- **Advantages**:

  - **Improve Energy Independence**: Reduce dependence on the traditional power grid. Especially in the event of power grid failures or power outages, it can provide emergency power sources.

  - **Increase the Utilization Rate of Renewable Energy**: It can effectively store the surplus electrical energy generated by photovoltaic power generation, avoid the phenomenon of wasted solar energy, and make fuller use of solar energy.

  - **Economic Benefits**: For users, in addition to saving electricity bills, in some areas, they can also obtain income by selling the surplus electrical energy back to the power grid.

- **Challenges**:

  - **High Cost**: The initial investment cost of photovoltaic energy storage systems, including photovoltaic modules, energy storage devices, PCS, and installation costs, etc., is relatively high. Although the cost is gradually decreasing with the development of technology, it is still one of the factors restricting its large-scale promotion.

  - **Energy Storage Technology Needs Improvement**: There is still room for improvement in the performance of energy storage devices in aspects such as energy density, cycle life, and safety. For example, lithium-ion batteries have safety hazards such as thermal runaway, and the life of lead-acid batteries is limited.

  - **Complex System Integration and Management**: Photovoltaic energy storage systems involve multiple components and complex control strategies, requiring professional design, installation, and maintenance personnel, and putting forward relatively high requirements for system integration and management.

Photovoltaic energy storage system

光伏储能系统

1. **定义**

- 光伏储能系统是一种将光伏发电与储能技术相结合的系统。它主要由光伏组件（太阳能电池板）、储能装置（如蓄电池）、功率转换系统（PCS，包括逆变器等）、控制系统和其他附属设备组成。光伏组件负责将太阳能转化为直流电，储能装置用于存储电能，功率转换系统可以把直流电转换为交流电，以满足不同负载的需求，控制系统则对整个系统的运行进行监测和管理。

2. **工作原理**

- 光伏发电阶段：太阳能电池板中的半导体材料（如硅）在光照下，内部的电子会发生跃迁，从而产生直流电。这个过程是基于光电效应，光子的能量被半导体吸收后，使得电子从价带跃迁到导带，产生电势差，进而产生电流。
- 储能阶段：当光伏发电产生的电能有剩余时，通过PCS将直流电转换为适合储能装置充电的直流电形式，存储到蓄电池等储能设备中。储能装置可以是铅酸电池、锂离子电池、液流电池等不同类型。例如，锂离子电池在充电时，锂离子从正极材料脱出，通过电解液迁移到负极材料中，实现电能的化学存储。
- 放电阶段：当光照不足（如夜晚或阴天）或者用电需求高峰时，储能装置中的电能通过PCS逆变成交流电，为家庭、企业等负载供电。

3. **主要组件**

- **光伏组件**：
  - 类型多样，包括单晶硅、多晶硅和薄膜太阳能电池板。单晶硅电池板光电转换效率较高，一般能达到15% - 24%左右；多晶硅电池板效率稍低，在13% - 18%左右；薄膜太阳能电池板虽然效率相对较低（通常在7% - 13%），但它具有可弯曲、质量轻等特点，适用于一些特殊的应用场景。
  - 光伏组件的安装方式也有多种，如地面安装、屋顶安装和建筑一体化安装。地面安装适用于大规模光伏发电站，能够充分利用土地资源；屋顶安装可以利用建筑物的屋顶空间，不占用额外的土地，适合分布式光伏发电系统；建筑一体化安装则是将太阳能电池板与建筑物的外观设计相结合，使建筑本身成为一个发电单元。

Photovoltaic energy storage system

光伏储能系统

- **储能装置**：
  - 铅酸蓄电池是比较传统的储能设备，价格相对较低，技术成熟。但它的能量密度较低，循环寿命较短。锂离子电池能量密度高，循环寿命长，自放电率低，不过成本相对较高。液流电池则具有容量大、寿命长等优点，但其系统复杂，体积较大。
- **功率转换系统（PCS）**：
  - PCS是连接光伏组件、储能装置和电网（或负载）的关键设备。它主要包括逆变器和直流 - 直流变换器。逆变器将直流电转换为交流电，使电能能够满足家庭电器等交流负载的使用。直流 - 直流变换器用于调整直流电的电压等级，以适应不同的设备和储能装置的充电要求。
- **控制系统**：
  - 控制系统可以对光伏组件的发电功率、储能装置的充放电状态、负载的用电情况等进行实时监测。它可以根据设定的策略，如定时充放电、根据电价峰谷控制充放电等，对系统进行优化管理。例如，在电价低谷时段，控制系统可以优先让储能装置充电，而在电价高峰时段，让储能装置放电，以节省用电成本。

4. **应用场景**

- **家庭分布式发电**：
  - 光伏储能系统可以安装在居民住宅的屋顶上，为家庭提供电力。在白天光照充足时，光伏发电除了满足家庭当时的用电需求外，还可以将多余的电能存储起来。到了晚上，储能装置释放电能，为家庭照明、电视、冰箱等电器设备供电，减少对电网的依赖，同时还能节省电费开支。
- **离网型光伏发电系统**：
  - 在一些偏远地区，如山区、海岛等，电网覆盖不完善。光伏储能系统可以独立为当地的居民点、小型基站等提供电力。这种离网系统通过合理配置光伏组件和储能装置的容量，可以实现长期稳定的供电。
- **工商业应用**：
  - 对于工厂、商场等工商业场所，光伏储能系统可以用于削峰填谷。在用电高峰时段，储能装置放电，缓解电网供电压力；在用电低谷时段，储存低价电能，降低用电成本。同时，一些对电力供应可靠性要求较高的企业，如数据中心，利用光伏储能系统作为备用电源，可以提高供电的稳定性和连续性。

Photovoltaic energy storage system

光伏储能系统

5. **优势与挑战**

- **优势**：

- **提高能源独立性**：减少对传统电网的依赖，特别是在电网故障或停电时，能够提供应急电源。

- **提高可再生能源利用率**：可以有效存储光伏发电产生的多余电能，避免弃光现象，使太阳能得到更充分的利用。

- **经济收益**：对于用户来说，除了节省电费外，在一些地区还可以通过将多余的电能卖回电网获得收益。

- **挑战**：

- **成本较高**：光伏储能系统的初始投资成本包括光伏组件、储能装置、PCS和安装费用等，相对较高。虽然随着技术的发展，成本在逐渐降低，但仍然是限制其大规模推广的因素之一。

- **储能技术有待完善**：储能装置的性能如能量密度、循环寿命、安全性等方面还有提升的空间。例如，锂离子电池存在热失控等安全隐患，铅酸电池的寿命有限。

- **系统集成与管理复杂**：光伏储能系统涉及多个组件和复杂的控制策略，需要专业的设计、安装和维护人员，对系统的集成和管理提出了较高的要求。

Photovoltaic energy storage system

光伏储能系统

产品型号		
电芯		
规格型号 Model	LFP100AH	LFP206AH
标称电压 Rating Voltage	3.2V	
标称内阻 Impedance	≤0.5mΩ	≤0.4mΩ
Series parallel connection method 串并联方式	16S1P	
电池组参数		
标称电压 Rating Voltage	51.2V	
标称容量 Capacity	100Ah	206Ah
最低容量 Minimum capacity	≥100Ah	≥206Ah
Upper limit of charging voltage 充电电压上限	58.4V	
Lower limit of discharge voltage 放电电压下限	40V	
Standard charging and discharging current 标准充放电电流	0.5C(50A)	0.5C(100A)
Maximum discharge current 最大充放电电流	1C(100A)	1C(200A)
Charging temperature range 充电温度范围	0～60°C	
Discharge temperature range 放电温度范围	-20～60°C	
Storage humidity range 储存湿度范围	0～75%RH	
出货 SOC Shipment SOC	20～25%	
Monthly self discharge capacity 月自放电量	≤3%/ 月（50%S0C，25±2°C）	
尺寸（宽 * 深 * 高）Dimensions(mm)	477*625*173mm	507*625*261mm
重量 Weight(Kg)	50±0.5Kg	91±0.5Kg
通信接口 Communication	RS232,RS485,CAN	
循环寿命 Cycle Life	5000 次，容量保持率≥80%	
BMS 参数		
单体过压保护值 OVP	3.65V	
单体过压释放值 Releasing Value	3.35V	
Individual undervoltage protection value 单体欠压保护值	2.8V	
Undervoltage release 单体欠压释放值	3.15V	
Overcurrent protection 保护电流值	150A	250A

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